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## TOBACCO INSPECTION LAWS OF MARYLAND.

PROCEEDINGS OF THE PLANTERS OF PRINCE GEORGE'S COUNTY, MARYLAND.

If the commentaries on the proceedings of the planters of Prince George's county were of a local character, referring only to the interests of those who composed the meeting, we should not hold ourselves justified in taking for them the space which they occupy—this not being a State, but a national journal. The principles, however, involved in these proceedings, and the questions they present as connected with the laws of inspection, are of general import. Viewing them in that light, (without denying the particular concern we feel in all that bears on the welfare of our old friends in that quarter) we have made them the subject of some reflections which, whatever else may be thought of them, will, we hope, be deemed well timed, as we know they are well intended.

### MEETING OF TOBACCO PLANTERS.

A meeting of planters of Prince George's County assembled at Upper Marlboro' on Thursday, the 8th of April, pursuant to notice, to take into consideration the present depressed condition of the tobacco market, and to offer suggestions for placing it on a better footing. A large number of the most influential planters in the county were present.

On motion of THOMAS F. BOWIE, Esq., WM. R. BARKER, Esq., was chosen President, CLEMENT R. CONNICK, Esq., Vice President, and GEO. W. WILSON appointed Secretary.

On motion, the Chair was authorized to appoint a Committee of three to draft resolutions for the action of the meeting. THOMAS F. BOWIE, BENJAMIN M. DUCKETT, and ALEXANDER KEECH, Esqs., the Committee appointed, retired, and after a time reported the following Resolutions:

1. *Resolved*, That the present system of the Inspection of Tobacco in Baltimore ought to be abolished, and in lieu thereof, State Inspections in the counties where the article of tobacco is grown established.

2. *Resolved*, That the State of Maryland is under no constitutional obligation to furnish in-

spection and storage within its limits for tobacco grown in other States, and such legislation is, in the opinion of this meeting, prejudicial to the tobacco growers of this State.

3. *Resolved*, That the withdrawal from Baltimore of all inspection of tobacco would prevent the influx of foreign tobacco within the limits of Maryland, and thus prevent the ruinous competition which the planters of this State have hitherto encountered from that source, since the establishment of the warehouses in Baltimore.

4. *Resolved*, That a Memorial be prepared and circulated among the citizens of this and other tobacco-growing counties of the State, embracing the views set forth in the foregoing resolutions, and praying the Legislature to enact at its next Session such laws as will effectually carry out the objects embraced in these Resolutions.

5. *Resolved*, That both political parties of this and all the other tobacco-growing counties be, and they are hereby requested to unite upon the subject of these resolutions, and to offer for public favor no candidate or candidates who are not known to be favorable to the same.

The Chairman of the Committee, THOMAS F. BOWIE, Esq., prefaced the introduction of these Resolutions with some appropriate remarks, and strenuously advocated their adoption. [We hope Mr B. will hereafter write

out his remarks; they were listened to with great interest, and contained many valuable suggestions.]

The question was taken separately on each resolution, and they were unanimously adopted.

The Chairman, who was empowered to appoint a Committee to prepare a Memorial under the 4th Resolution, named the following gentlemen: Thomas F. Bowie, Alexander Keech, John D. Bowling, Geo. W. Marriott, W. W. W. Bowie.

ALEXANDER KEECH, Esq., submitted the following Resolutions, and prefaced their introduction by a pertinent speech:

*Resolved*, That so long as the present system in regard to the sales of tobacco exists, the buying and selling of the article by the same agent is inadmissible, and that the planters be recommended to dismiss said agent.

*Resolved*, That this meeting recommend a per centum compensation to agents instead of the fixed price per hoghead.

THOMAS W. CLAGETT, Esq., offered the following Resolutions, and spoke in favor of their adoption; they were adopted:

*Resolved*, That it be recommended to the planters of Prince George's County to appoint and constitute three Special Agents from among the tobacco planters of said county, who are interested in the prosperity of the tobacco interest, to go to Baltimore and sell their produce, until the inspection of tobacco is brought back to the county.

*Resolved*, That it be recommended to the tobacco planters to meet in Convention at Upper Marlboro' on Saturday, the 18th April inst., to appoint the Special Agents for the purposes expressed in the above Resolution.

GEO. W. MARRIOTT, Esq., offered the following Resolution, which was unanimously adopted.

*Resolved*, That the thanks of this meeting be unanimously tendered to THOMAS F. BOWIE, Esq., for the great exertion and labor he has undergone in behalf of the tobacco planters.

*Resolved*, That these proceedings be published in the Marlboro' Gazette, and that the thanks of the meeting be tendered to the Editor for his aid in behalf of the tobacco interest.

WM. R. BARKER, President.

C. R. CONNICK, Vice Pres't.

GEORGE W. WILSON, Secretary.

[Upper Marlboro' Gazette.]

In olden time, England, France, and many other countries of Europe had laws regulating the material and manufacture of cloth, and of an infinite variety of other articles, and State inspectors were appointed to see that the various commodities brought to market were such as the law permitted the consumer of clothing and food to purchase, it being assumed almost universally that the latter were liable to be imposed upon, and that Government interference was necessary for their protection. By degrees, with advancing civilization, it began to be perceived that men were capable of self-government to a certain extent, and inspection laws fell gradually into disuse, leaving the consumers of cloth to determine for themselves whether they preferred their coats to be composed of one material, or of two; and whether a cloth of 27 or of 36 inches could most economically produce the garment desired. The disappearance of these laws from various countries was in the exact ratio of the growth of wealth, of civilization, and of the knowledge of the true laws that regulate the intercourse between man and man. At the time that they had fallen almost entirely into disuse in England, they were still in full force in France, and millions of dollars of property were destroyed in the years shortly previous to the commencement of the Revolution, to the utter ruin of its owners, because of the failure of the manufacturers to govern themselves by laws made, perhaps, a century before: possibly, even, differing but little from those of St. Louis, or of Philip Augustus, with whom the system originated. The object of those laws was to prevent frauds, yet frauds are found to exist in the precise ratio of regulation and restriction. So numerous are they in France, that it has been stated by several agents of the Government, traveling in foreign countries, that their trade is almost ruined by them, and it has been urged upon the State to establish an inspection of silks, and cloths, and paper, and of various other commodities—prohibiting the export of all such as had not been weighed and marked by Government, and certified to have been *manufactured according to law*.\* Our countrymen look upon this as the height of ab-

\* The Bakers of Paris are still subjected to certain old *ordonnances*, as old as that of the Provost of Paris of 22d Nov. 1546, which says the bread "must be without mixture, well kneaded, fermented, properly shaped, well baked and dusted, cooled and dressed by half-past six in the morning. It is forbidden to use any rejected or damaged flour, or injured grain or bran, re-ground." Even the uniform of the bakers' apprentices

surdity. They are accustomed to let men use their own judgment as to whether coats shall be of woolen cloth, or of satin, and whether they shall have long or short tails; and to determine for themselves whether they will wear shoes whose stitches are hardly "within hail of each other," and that will give way on the first wearing, or others honestly made, that will wear for months and then bear patching. They see that the general interest is best consulted by never undertaking to regulate by law what may be better adjusted by individual arrangements, and that it is easy to have *too much Government*. Nevertheless, they see nothing absurd in State inspections of tobacco, or of flour, deemed absolutely necessary to prevent frauds, as if the purchasers and sellers of commodities could find no way of coming to an understanding as to the real value of those in market, without the intervention of an officer appointed by Government, who may or may not, as it happens, possess any of the qualities necessary to constitute him a judge of the articles he is called up to inspect. *To us*, the whole system of State inspection appears an absurdity, involving no small amount of taxation, and we are happy to see that is gradually going out. The flour inspection, and we think various others, have been abolished in New-York, and we doubt not that of tobacco in Maryland will speedily follow. Nevertheless, there are some of our own readers who have such faith in the system that they believe it capable of producing the effect of diminishing the cultivation of tobacco in Ohio and Kentucky, provided the inspection be rendered local instead of general; and that the people of the West, producers of that commodity, on the one hand, and the merchants of Baltimore, purchasers of it, on the other, can thus be deprived of the intervention of an officer, appointed by Government, who, nevertheless, would be found perfectly willing to serve any private association of merchants on better terms than those upon which he now serves them at the instance of the State. In order that we may see how the local system would work, we must first inquire what is the object of inspection, and what it is that gives value to the marks the Inspector sees fit to put upon the packages that he inspects.

Tobacco differs in color and taste, and probably in other qualities. Some colors and tastes are more esteemed than others, and less abundant, and those who desire them are willing to pay higher prices for them than they would for others. In every parcel brought to market various qualities are found, and it requires nice discrimination to determine which should rank as No. 1—which No. 2, 3 or 4. The merchant wishes to purchase a number of hogsheads, but he possesses neither the leisure nor the knowledge necessary to enable him to satisfy himself as to the qualities of each, and therefore he is desirous that some one should examine it for him, and is ready to pay him for his trouble. The seller would be willing to have it *examined* by any one, but he would not permit its quality to be *marked* on the package, unless he had some control over the choice of the examiner. Both agree upon a referee, and are ready to abide by his decision; and here we have the Inspector. The qualities required in such a man are: 1. A perfect knowledge of the standard that is established and in general use, that he may put upon it such marks as will enable the purchaser in Bremen or Hamburg to know what he is buying, without a necessity for farther inspection. 2. An entire freedom from any influences that might tend to induce him

is prescribed, "they are to wear when at work a frock which is to reach below the calf of the leg, without any slit or opening, and a waistcoat closely buttoned, which may be without sleeves. They are not in any case to show themselves in the streets without pantaloons and a waistcoat with sleeves."



to act dishonestly, to the prejudice of either buyer or seller. Without these neither would agree to the reference.

At present tobacco is inspected in Baltimore, where tobacco-sellers and buyers, or their agents, congregate from all parts of the United States and of Europe. The business is very large, and, as a small compensation for the inspection of each hogshead enables the Inspector to make large wages, the office is very desirable, and is, or may be, filled by men who possess a perfect knowledge of the standard, and whose character places them beyond the suspicion of private influence; the consequence of which is that men buy and sell hundreds of hogsheads, relying upon their marks alone.

Let us now suppose the system of local inspection to be established, and see what would be the result. Every county, *and at length every election district*, has its Inspector, and twenty, fifty or a hundred different Inspectors are putting their marks on hogsheads of tobacco. The business of each is, however, small, and will not pay for the time of a man who possesses the knowledge and the honesty that are required. Such men seek larger fields of action. Inferior men now act as Inspectors, and the consequence is that the standard, ceasing to possess uniformity, becomes as various as there are various Inspectors. The Inspector, too, is a neighbor of the tobacco grower, and is unwilling to do him injury by certifying that that which the latter calls No. 1 is really only No. 2. Some have knowledge and perfect integrity; but some have only one of these qualities, and some may have neither. The buyer is in Baltimore, and he knows nothing of the parties, the consequence of which is that he attaches no value to their marks. He would as readily take the certificate of the grower himself—and even more readily, if he knew him to be a man of judgment and undoubted integrity. The result would be that the local inspection would soon cease to exist, as it did heretofore, because valueless, and the buyers and sellers in the great market would unite in appointing a referee—an Inspector—some person that they knew to possess knowledge and integrity, and whose certificate would pass current in Europe with all who desired to purchase tobacco—and thus the city inspection would be reestablished, *without the aid or interference of Government*, a consummation, as we think, devoutly to be wished. Under such a system, the very highest degree of knowledge and integrity would be required, and would be liberally paid for, with less cost to the parties in whose service it was employed, than at present, *and that knowledge and integrity would be as much at the command of the people of Kentucky and Ohio as at that of the people of Maryland.*

We submit these views to the parties engaged in the present movement, and hope they will give them serious consideration. If they wish to put an end to the whole system of State inspection, let them obtain the law they desire, which will result in every man becoming his own inspector, *subject to the decision of a city referee*; but if they believe in any advantage to be derived from its continuance, we would advise them to hesitate about pressing the adoption of a measure that can result in nothing but disappointment. They can no more shut western tobacco out of the great market than they can make the earth revolve from east to west. One principal tobacco market there will always be. At present it is in the immediate vicinity of the planters of Maryland, who therefore have small freight to pay. If they can succeed in driving western tobacco out of that market, and thus prevent the merchant from obtaining therein all the qualities he desires to purchase, they may, perhaps, find themselves obliged to



pay the freight to Philadelphia or New-York, and thus to seek themselves the competition with the West which they now desire to restrain, or even to destroy. They should always remember that the largest market is the best to trade with.

A piece of silver of a certain size, and with a certain mark, is called a dollar, and dollars pass by tale, because every one knows that every such piece contains a given quantity of silver; but if we had a hundred different mints, public and private, engaged in stamping silver pieces, the managers of each putting in more or less alloy, according to their fancy, the result would be that every such piece would be carried to some person admitted to possess the skill to ascertain its true value, and the integrity necessary to give value to the certificate he would be requested to put upon it. That man would require to be paid, although the person who first stamped it had already been so, and thus two men would be receiving wages for doing the business that might have been done better by one. In a little time the producers of silver would find that they could obtain more for it if they went at once to the right man and obtained his certificate, and by degrees the private mints would cease to exist. Such would be the case with local inspections of tobacco.

In all poor and barbarous nations there exists an extreme jealousy of rivals in trade. It is found in all villages, and is one of the essential characteristics of what the Germans call *little-townism*. It disappears with the growth of wealth, the man who has acquired a spade feeling no jealousy of his neighbor who digs with his fingers. In evidence of this, on a large scale, we have the general extension of the warehousing system, by means of which merchants from abroad are enabled to make up cargoes in London or in New-York, composed of the productions of all the world, almost as cheaply as they could have them at the places of production. This is the system that our Maryland friends would abolish. They would go backward instead of forward in civilization, substituting jealous restriction for liberal competition. We feel assured, however, that the resolutions have been adopted without full consideration, and that the measures proposed will not be urged with a view to the accomplishment of any such object.

If the tobacco planters of Maryland would prosper they must learn that prosperity follows exertion directed by knowledge. Their competitors are men who are all laboring for themselves—men in whose minds every stroke of the ax and every furrow of the plow is identified with the personal independence and welfare of him who strikes the one and who opens the other; whereas the Maryland planter operates by the labor of those who think little and care less. He must himself do all the thinking, that he may more skillfully and effectually direct the labor of operatives who have no interest in the results, if he would successfully compete with rival planters in Ohio. If he will not give himself, mind and body, to the task—if he will live highly and spend in amusements the time and capital necessary to success—he must not be surprised if decay and poverty, manifested by exhausted lands and diminished population, be the consequence; nor will it be matter of surprise if such a state of things be accompanied by increasing jealousy of more prosperous neighbors. Hercules helps him who helps himself. Let him learn to think—to explore the real sources of his embarrassments, such as they may be—to defy such as may be averted by sagacity and exertion, and to submit with grace to such as are inevitable; but let him never play the pitiable part of a drowning man catching at a straw.

## WHO IS THAT YOUNG MAN ASHAMED OF THE PLOW ?

WE sometimes hear of young men being too proud to be seen laboring in the fields—indeed, we are not sure that we have not seen such. Now, nothing can justify any man in eschewing manual labor on his farm, unless it be that he can be otherwise more profitably employed in the superintendence and direction of the labor of others, or that easy circumstances allow him to indulge his leisure in the luxury of acquiring knowledge by converse with men of superior minds, personally or from their writings.

Do men of narrow minds who despise labor remember that in Rome, after the expulsion of the Kings, *seven acres* were allowed to each citizen ? Curius Dentatus, Fabricius, Regulus and others distinguished as the most deserving among the Romans, had no larger estates. Cincinnatus, according to some authorities, had only four acres. On these limited spaces they dwelt and cultivated them with their own hands. Until he tries it, no one knows on how little land all the essential comforts of life may be produced.

It was literally from the plow that Cincinnatus was summoned to be Dictator ; and the Samnian Ambassadors, when they went to Curius Dentatus to sue for peace, found him on his farm, cooking his repast of vegetables in an earthen dish. To purchase easy terms they offered him vessels of gold, but the noble Roman disdainfully refused their offers. "I prefer," said he, "my earthen pots to your vases of gold. I have no desire for wealth, and am satisfied to live in poverty and *rule over the rich.*" Can any one, pray, tell us where any of the old Dentatus stock can be found ?

Farmers of the United States !—you for whom alone we care and labor—if you can find the least sprinkle of that old blood, seize on it as you would on a scion of the choicest fruit about to become extinct, and try to breed back on it, until we can get a stock of honest men for public functionaries of every sort, whose study shall be to diffuse knowledge, to inculcate economy, and to promote peace, and such distribution of the public moneys collected from the landed interest, as shall enlighten and purify the mass of the *cultivators of the soil* until the wisdom and forecast of the constituency shall be reflected by all our public men and public bodies. If ever you can get, for instance, one of the old Washington stock, one who will tolerate freedom of thought and of speech, and go exclusively for the Constitution and the public good, persuade him to hold on until his new and salutary system of management of the public farm shall be thoroughly developed and well rooted—until an odious system called the "spoils system," worse than the Canada thistle, shall be extirpated from the whole earth, and the anxieties of all our young farmers shall be withdrawn from the tree of patronage and the fruit of office, which turneth to ashes in the mouth, and their contemplations be turned *on their own condition, business, and rights*, and to the means of their vindication and improvement.

In this exhortation there is no narrow suggestion or spirit of *party*. It is intended and believed to have a direct bearing on the prosperity of practical Agriculture ; for, depend on it, as respects the ultimate welfare and safety of your pursuit, they rest, as does public virtue, itself, upon *knowledge* ! How many idle young men have we, standing where idleness ever does, on the brink of ruin, and who could get ten times as much land as satisfied a Cincinnatus or Dentatus, who are yet ashamed to labor, but not ashamed to enroll their names on the list of the most abject of all slaves—slaves whose daily bread *depends on the capricious breath of arbitrary power* !

## THE PATENT-OFFICE REPORT AND THE POTATO ROT.

WE are well aware that no words could be selected for a caption that would be more likely than these to prompt the reader to overlook all that follows.

Of the celebrated Report from the Patent-Office of about 1,200 pages, 230 were appropriated to this subject alone; so that if the printing thereof cost \$90,000, the Government paid nearly \$20,000 on account of the rotten potato part of it—a sort of *omnium gatherum*, comprising not only some of the most philosophical and erudite speculations of the day, but a vast mass besides of the most absurd and puerile balderdash which until then had found its way into print in any form or through any channel. In vain may you look there, however, for any results of original and hitherto unknown investigations conclusive or plausible as to cause or cure for this vegetable malady.

How much better and more creditable would it have been to have offered liberal premiums of, say, \$500 or \$1,000 to practical farmers and vegetable chemists and physiologists, at home and abroad, for the best disquisitions and proofs on the subject, to be awarded by such men as TESCHEMACHER, of Boston, and Doctor EMMONS, of Albany, and RUFFIN, of Virginia, to such investigators as might be found, in their judgment to disclose valuable discoveries in Vegetable Physiology, even though they might not prove to be conclusive as to the particular object of inquiry, for that may possibly remain yet for a long time impenetrable to human ken.

If that course had been taken, instead of gathering up in one great heap, at immense cost, all the chaff, as well as the grain which had been already scattered far and wide over the world, we might possibly have had something new for our money—something which for its novelty and value would have made its own way through the 100,000 impressions of agricultural and other journals, and which, like discoveries in other departments of knowledge, and by other branches of the Government, would have reflected some credit on the country, and have added something fresh and attractive to the stock of agricultural and horticultural literature—something a little more profound if not quite so pathetic as the following sample of much more such trash in the Report, distributed gratuitously to the friends of Members of Congress, but at a cost of not a great deal short, as it is said, of \$100,000 to the people:

## ANOTHER CAUSE FOR THE POTATO ROT PROPOSED.

To the Editor of the Maine Farmer:

Dear Sir: Please to inform your readers that, in my opinion, the failure of the potato crop by rot and rust is caused by cutting the seed. I think the whole trouble may be safely attributed to the *unfortunate use of the knife among the seed designed for planting*. I do earnestly entreat my agricultural friends to pause and take into consideration this hint before they complete the destruction of that valuable root. That beautiful skin which

*God has put over the potato should not be cut, nor in any way wounded, if a perfect crop is wanted.*

The reasons, if reasons are wanted to establish a self-evident fact, together with the remedy, can be made the subject of another communication, if desired. B. SHAW.

Oldtown, Sept. 11, 1845.

NOTE.—We publish friend Shaw's remarks on the potato rot, although we cannot agree with him. If cutting potatoes caused the rot, why have we not been troubled with the disease years ago? The custom of cutting potatoes is old, while the rot is new, [Ed. Me. Farm.

We take it for granted that "another communication" was never "desired," and though the brevity of this earnest entreaty against "cutting" or in "any way



wounding" the "beautiful skin" which God has given the murphies, moved the tender heart of the Editor and prevailed with him to publish a theory in which he could not agree to believe, we may presume his sagacious doubts as to the soundness of the *Shaw theory* were not participated by the compiler of the Report. But perhaps not finding much that was new, plausible or important, in the files of the office, he may have considered it his duty to see how large a mass *could* be made up out of all that had been published in any shape or form. Certain it is that of the 230 pages on this single topic, very little of it made there its first appearance, and all of value that was republished might have been comprised in twenty pages.

But, after all, this huge Report will serve to give great *weight* to other Congressional precedents, which the friends of agricultural instruction will not fail to remember and to cherish. It will serve as a standing proof that Congress recognizes its *power over this subject*—that it is within its province and Constitutional sphere of action *to make appropriations out of the common treasure of the country for the diffusion of agricultural knowledge* as well as the knowledge of Astronomy, of War, and of Navigation, by the establishment of Observatories and military and naval schools and academies; and though it would be a strange organization of Government which should preclude such power in the first, and grant it in the other cases, still these Patent-Office precedents are to be hailed by the friends of the plow as so much gained. *The principle is established*, as far as they go. If Congress can appropriate \$3,000 or \$30,000 or \$100,000 for the collection, increase, and diffusion of agricultural knowledge at all, the mere mode and form of doing it becomes a subordinate question. By whatever influence or management Congress may have been prevailed upon to exert, and the Executive to sanction the power, still there is the principle acknowledged; there stands the precedent; and now, whether it shall be used in a sneaking, left-handed manner, or whether Agriculture shall be openly encouraged as recommended by Washington and Jefferson—whether a Department shall be created for its benefit, as for interests and branches of industry and art that bear no comparison with it in productiveness or dignity, is a question to be settled between those who would place it on a footing corresponding with its contributions to national wealth and its support of all other interests on the one part, and those who, on the other, are content to have it and all that appertains to it stuck away in a *pigeon-hole of the Patent-Office!* an office highly useful in itself, and against the proper administration of which we have not now, and never have had, a word to say. Still we shall permit no search after ephemeral popularity or fear of power to drive from our memory the fact that while it presumes to take under its patronizing wing a great national interest for which WASHINGTON recommended a separate Department, this Patent-Office is itself but an appendage or bureau of one, and justly complains, we have no doubt, of having labors to perform in its proper sphere, in mass and magnitude, beyond the capacity of the force allowed by law. We do not say that it should not be, itself, an independent Department as respects the talents necessary to its administration in a manner to do honor to the country and to promote the great ends of industrial improvement. In these respects we should place it far above the Post-Office Department, which has been, very improperly and perniciously for the public interests, and very absurdly on every account, "ranged into the Cabinet." As to the actual head of the Patent Office, we take it for granted and have no doubt but he is a gentleman and a scholar. Estimating its functions very highly as we do, we

should be sorry to think otherwise ; and in respect of the legislation for its government, we have deprecated and still deprecate the meanness of the allowance to the Chiefs of its scientific Bureaus, and would defy any clear-headed, honest man, having a true conception of the foundations of public welfare, to say why a man exercising for the Government such faculties as Doctor Page, for example, or Mr. Kelly, who was driven from the office—is there *any* good reason why such men should not be as highly rewarded as a full Colonel in the army ? But enough of this. We do not know that we shall ever again advert to this subject, but we hold it to be not only our right but our duty to examine and criticise fearlessly whatever is done by the *Government* in direct relation to Agriculture, and to insist that a *Government performance* designed as a national exhibit of the condition, progress and desiderata of American Agriculture, when undertaken as such, shall be done in acknowledgment of and in a style commensurate in all respects with the paramount importance of the great concern it is designed to elucidate and uphold ; and not be thrown in as a mere incidental make-weight to the Report of the Bureau of another Department, and made up of shreds and patches, intended to present the most valuable contents of journals which might be had for the merest trifle, and would be subscribed for by all who are worthy of having the cream of them skimmed off by the Government and presented to them for nothing. If these Reports were distributed to persons thirsting for information who were unable to subscribe for the papers from which they are made up, the case would be different.

We have not been able to get a copy of the last of these Government Annuals issued from the Patent-Office, though we believe some of our more favored brethren have been supplied. We cannot, therefore, speak with exactness as to its volume or contents, but have understood that it bears to its illustrious predecessor about the same proportion that a baby whale at the breast does to its huge mamma—for it is a fact, as the whalers of New-Bedford will confirm, that while some fashionable dames, beginning with Her Majesty Queen Victoria, put their young ones out to nurse, these monsters of the deep suckle their own brats. It does not follow, however, that because this last of the Patent-Office progeny has dwarfed to a fourth of the size of the one which went before, that it may not revert again, after a year or two, to its former character and bulkiness ; for a new chapter has been opened in Natural History, by naturalists called “alternate generation,” according to which, as we are told, the first progeny bears no resemblance either in form or features to the progenitor, but returns, it may be, in the third or fourth generation, to the form of the primitive parent ; so that a mother may not be represented by her daughter or grand-daughter, but by her great or great-great grand-daughter, who becomes in turn the medium through which the species is perpetuated ; and thus, perhaps, the Patent-Office Report of American Agriculture may return every fourth year to the standard of 1845, which, by-the-by, let it be never so well done, would, we should suppose, be quite often enough ; for though individuals may be all the time making discoveries and accessions to knowledge in philosophy and the arts, such are well and properly set forth in the Patent-Office Reports of inventions, *nations* do not make visible progress *by the year*. Even elephants require some twenty months or more for procreation. What we want, in fact, is not a Government annual distillation of newspapers, but a *well-digested, comprehensive, well-executed Census*, and Normal Schools in each State for the preparation of agricultural teachers on the plan of our military schools.



We have been reminded again of the littleness of the Government—for our dealing is not with individuals—in thus extracting without paying for, the marrow of all our agricultural journals, (to be gratuitously re-distributed,) by having just read what follows, in the last, that we have seen of the *London Gardener's Chronicle*, edited by that liberal and renowned scholar Professor Lindley, one of the Commissioners appointed by the British Government to investigate the causes of the Potato Disease.

**THE FARMER'S FRIEND:** a Record of Recent Discoveries, Improvements, and Practical Suggestions in Agriculture. 8vo. Smith, Elder, and Co., 65 Cornhill, London.

It ought to be a good book, for it is just the cream of the Editor's agricultural library. Professedly so: he has simply skimmed the various numbers and journals of the farmer's periodical literature, and transferred the produce to his own pages. And there is no doubt that it is a good book. Containing as it does the best of everything communicated to our own columns and those of other agricultural periodicals, it could not be otherwise. The only question for consideration is, whether or not the public will patronize a scheme involving so entire an entering into other people's labors as this. We do not think it ought. No doubt a compilation is none the worse for its being a professed compilation; but the idea of publishing every six months a selection from the pages of the best new books on

farm matters, is so much more distinguished by its boldness than by its justice, that certainly we shall not speak a good word for it. Nevertheless we have no objection to let the editor say one for himself. The following is an extract from the Preface:

"To the editors of the several journals who have so kindly and liberally permitted the Editor of this book to avail himself of their respective publications, he begs to offer his cordial and grateful acknowledgments. He hopes that the value of the extracts which he has made, may induce many to have recourse to the original sources for the information which, in this work, they can, for the most part, only have in a fragmentary form; and that thus, at least, he may have helped to advance the great cause of agricultural improvement; a cause the promotion of which is daily becoming a subject more momentous and vital.

What miserable cant is this! When you have seized and cracked another man's nuts and distributed the kernel gratuitously to the public, you would persuade him that the taste of these would induce people to go more eagerly to buy up the hulls! How considerate this in Uncle Sam! How polite! Well, there is a virtue, called the *suaviter en modo*, which, it cannot be denied, has its charm, as exhibited in the courtesies even of the robber on the Mexican highway, when, with a pistol at your head, he most gracefully begs to have the honor of becoming your banker.

There is this, however, to be said in behalf of the compiler complained of by Professor Lindley, who, to make up his book, "skimmed the various numbers and journals of the farmer's literature and transferred the produce to his own pages." He paid at least the cost of paper and printing, out of his own pocket, whereas when Uncle Sam turns agricultural editor he makes up his manual out of the cream of other people's labor; paying for the publication of it out of the general public treasure, and then bestows it gratuitously not on men unable to buy, but on partisan favorites of Members of Congress. All the agricultural editors of the Union—except ourselves—are but so many caterers, whose materials, gathered up at their own cost, are seized upon by the Government, lying in wait for them, as they come in from the fields where they have been collected, with much pains, and in the plentitude of its power condemns them as lawful prizes. Were an individual to commit such piracy, the law would make him amenable. Even the jackall, commonly called the *lion's provider*, is only required by the king of beasts to start the game for his master; but our king of editors, the U. S. Government, requires his purveyors to run it down and to bring it in to be laid at his royal majesty's feet.

That The Farmers' Library has been spared from much mutilation would perhaps be mortifying to our vanity, did that not lead us to ascribe the omission to that



amiable repugnance to cutting into the body of such a beautiful creature as it is—to that same tenderness of feeling which prompted Mr. Shaw to protest against cutting with a “knife” the beautiful skin which God had given to the potato; and should none of our correspondents and essayists be quoted hereafter, we would persuade them to take comfort in the recollection that the absence of Brutus’s statue from the procession was observed with particular sensation, and considered a higher compliment to the Roman patriot than if it had been paraded in its place with all the others.

Returning to the Disease in the Potato. In 1844, Mr. Teschemacher of Boston, announced, and was we believe the first to announce the opinion founded on observation, that the cause of the rot was a *fungus*; the spores or seeds of which exist in vast quantities in the atmosphere. In 1845, the French Academy of Arts and Sciences, acting on the enlightened and exemplary principle that in the prosecution of scientific researches, and the distribution of honorary rewards for great discoveries, there should be no geographical limits, deputed Professor Charles Morren of Liege to examine into the cause of the potato rot, and he came to the same conclusion which had been reached and proclaimed in the New-England Farmer the year before by Mr. T. It has been acted upon successfully, as we have understood, in the neighborhood of Boston. But after all, we apprehend that no theory has been so well established as to be pronounced “self-evident.” On the contrary, as Doctor Doubty would say, “much may be said on both sides;” but we incline to the opinion that in Mr. Colt’s case, the conservative virtue was in the *salt*—while the other ingredients may have acted as fertilizers, to increase the crop, restoring to the land some of constituents necessary to the production of that plant, and which had been carried off from it by previous crops.

*My Dear Sir:* You have asked me for my opinion about the *potato rot*. I must confess that I am as much at a loss to say the why and the wherefore of this disease, as those who have sought for its causes in Europe. This I can say, however—potatoes manured with *barn-yard manure* are infinitely more subject to the rot than those raised without it. I have found the best yield, where I spread broadcast eight or ten bushels of *Turks Island salt* per acre, that cost me twenty-three cents the bushel, and then treated with a compost—three parts marsh mud—one part anthracite ashes—one part slaked lime, and one part plaster of Paris. In that case I had no rot, the crop was not large—about 100 bushels to the acre, but they were of excellent quality. These potatoes, say “*Mercers*” and “*pink-eyes*,” when dug, were put in barrels, filled with cinders or charcoal-dust from the railroad, and these potatoes which I am now using, are as dry and mealy as those dug in November or December—no rot, or a sign of rot among them.

I am convinced that if one will manure his potato lands not with horse manure, but with salt, ashes, and lime, he will escape this murrain in his potato crop. I am no chemist, but this I know, that salt, lime and ashes gave me as fine potatoes as any one need to wish for.

It is a curious fact as to potatoes, that in 1845 we had no potato balls or seeds. I inquired for them and sought for them in various parts of the State—found none and had none myself, and could procure none elsewhere. In 1846 we had some balls. I have collected a parcel, which this spring I have sowed, and will see what the result will be, and test the value of raising new varieties from seeds, in which I place confidence. At all events, I deem it a duty in every one who has the means, to test all such experiments as may be beneficial to the community; tell me, therefore, what I shall try, and I will try it for the good of my neighbors.

Yours truly,

R. L. C.

WELL SAID.—A wealthy farmer in Kentucky says, “I would rather be taxed for the education of the boy, than the ignorance of the man—for one or the other I am compelled to be,”  
[Border Watch.]

## VARIETIES OF POTATOES FROM THE SEED.

**TO RAISE VARIETIES.**—A variety of the potato is generally considered to continue about fourteen years in perfection, after which period it gradually loses its good qualities, becoming of inferior flavor and unproductive; fresh varieties must, therefore, be occasionally raised from seed. The berries, or apples, of the old stock, having hung in a warm room throughout the winter, the seed must be obtained from them by washing away the pulp during February. This is thoroughly dried and kept until April, and then sown in drills about half an inch deep and six inches apart, in a rich, light soil. The plants are weeded, and earth drawn up to their stems, when an inch in height; as soon as this has increased to three inches they are moved into a similar soil, in rows sixteen inches apart each way, and during their future growth earthed up two or three times. Being finally taken up, in the course of October, they must be preserved until the following spring, to be then re-planted and treated as for store crops.

Some gardeners sow in a moderate hot-bed, very thin, in drills the same depth as above, and nine inches apart. Water is frequently and plentifully poured between the rows, and earth drawn about the stems of the seedlings until they are a few inches in height. They are then transplanted into rows, water given, and earthing performed as usual. The only additional advantage of this plan is, that as the seed can be sown earlier, the tubers attain a rather larger size the first year.

It is to be remarked that the tubers of every seedling should be kept separate, as scarcely two will be of a similar habit and quality, while many will be comparatively worthless, and but few of particular excellence. If the seed is obtained from a red potato that flowered in the neighborhood of a white-tubered variety, the seedlings, in all probability, will in part resemble both their parents; but seldom or never does a seedling resemble exactly the original stock. At all events, only such should be preserved as are recommended by their superior earliness, size, flavor, or fertility.

The early varieties—if planted on little heaps of earth, with a stake in the middle, and when the plants are about four inches high being secured to the stakes with shreds and nails, and the earth washed away from the bases of the stems by means of a strong current of water, so that the fibrous roots only enter the soil—will blossom and perfect seed.

**FORCING.**—The season for forcing is from the close of December to the middle of February, in a hot bed, and at the close of this last month on a warm border, with the temporary shelter of a frame. The hot-bed is only required to produce a moderate heat. The earth should be six inches deep, and the sets planted in rows six or eight apart, as the tubers are not required to be large. The temperature ought never to sink below 65°, nor rise above 80°.

The rank steam arising from fermenting dung is undoubtedly injurious to the roots of potatoes; and to obviate this they may be planted in narrow beds, and the dung applied in trenches on each side, or all the earth from an old cucumber or other hot-bed being removed, and an inch in depth of fresh being added, put on the sets, and cover them with four inches of mould. At the end of five days the sides of the old dung may be cut away in an inward slanting direc-

tion, about fifteen inches from the perpendicular, and strong linings of hot dung applied.

If the tubers are desired to be brought to maturity as speedily as possible, instead of being planted in the earth of the bed, each set should be placed in a pot about six inches in diameter; but the produce in pots is smaller. But young potatoes may be obtained in the winter, according to the following plan, without forcing:

Plant some late kinds, unsprouted, in a dry rich border, in July, and again in August, in rows two feet apart. They will produce new potatoes in October, and in succession until April, if covered with leaves or straw to exclude frost. If old potatoes are placed in dry earth, in a shed, during August, they will emit young tubers in December.

**PREPARATION OF SETS FOR FORCING.**—They should be of the early varieties. To assist their forward vegetation, plant a single potato in each of the pots intended for forcing, during January. Then place in ground, and protect with litter from the frost. This renders them very excitable by heat; and, consequently, when plunged in a hot-bed, they vegetate rapidly, and generate tubers. The seed potatoes are equally assisted, and with less trouble, if placed in a cellar just in contact with each other, and as soon as the germs are four inches long, are removed to the hot-bed.

**MANAGEMENT.**—More than one stem should never be allowed, otherwise the tubers are small, and not more numerous.

Water must be given whenever the soil appears dry, and in quantity proportionate to the temperature of the air. Linings must be applied as the temperature declines; and air admitted as freely as the temperature of the atmosphere will allow. Coverings must be afforded with the same regard to temperature.

From six to seven weeks usually elapse between the time of planting and the fitness of the tubers for use. The average produce from a light soil is about five pounds.

There is another mode of obtaining young potatoes, during the winter, which is much practiced on account of its facility; though, being produced without foliage, they are not so fine in flavor, are deficient in farina, and are otherwise inferior. Old potatoes often throw out from their sides young ones, early in the spring; and of this habit advantage is taken in obtaining them still earlier. Some full-grown and ripe tubers, of the ox noble variety, that have no appearance of vegetating, must be laid alternately with layers of perfectly dry, rich vegetable mould, four inches deep, in pans or boxes, until they are filled. These may be placed in a thoroughly dry shed, or on a shelf in the kitchen. If the layers are constructed in the corner of a shed or cellar, the produce will be equally good, though longer in coming to perfection. No foliage is produced, the potatoes soon are surrounded by numerous young ones of moderate size. No water must ever be admitted on any account. Notice is to be taken that between three and four months elapse between the time of forming the layers and the fitness of the produce for use. Thus if made early in September, the crop will be ready in the course of December. When they are examined, those that are fit may be taken off, and the old potatoes replaced until the remainder are ready.

[Johnson's Gardener's Dictionary.]



## LIEBIG'S MANURES.

If the name and the subject which these two words present would not provoke the curiosity of the reader to peruse what follows, and judge for himself, it is not to be expected that anything we could say would induce him to do so.

We are aware that the topic is a dry one, but that, after all, depends very much, with all questions, on the spirit with which they are encountered.

If men read for the sake of enlarging the bounds of their knowledge, there is no disquisition that can prove dry to him who feels, as he proceeds, that delightful enjoyment of the mind which the conscious accretion of knowledge brings along with it. If those who favor THE FARMERS' LIBRARY with their patronage take pleasure only in reading accounts of wonderful crops and descriptions of large, fat sheep and bullocks, and simply of how poor land may be made rich, by plowing in ashes, and lime, and manure—things well known since long before the days of VARRO and COLUMELLA—we fear they will be disappointed; and if their reading be only to have their sympathies excited and their passions moved, why, the better way would be to give orders to their bookseller to supply them with the latest novels as they come every day reeking from the press. But we flatter ourselves that our patrons are for the most part persons who are seeking to get at the philosophy of their business, that they may follow and enjoy it as one that invites exercise and industry of the mind as well as of the body.

If that be not the object, what is the use of taking such a work as we are endeavoring to make of this? If facts only are what they seek, any one of our old volumes of the American Farmer, as far back as 1819, will tell nearly the whole story.

It may have appeared in some other shape or work, but the only one in which we have seen what follows from the pen of one of the most distinguished inquirers into the science of Agriculture, is the pamphlet which is here copied, and which was kindly placed in our hands by an English professional gentleman who has embraced the science and literature of Agriculture within the range of his extensive inquiries. The perusal will require and reward the reader's close attention, and be pronounced an appropriate and valuable addition to every farmer's library.

Professor Liebig proceeds next, among other things, to show and expose the fallacy of the belief entertained by some, that in applying bone manure, plaster of Paris (gypsum) nitrate of soda, &c., they may dispense with manure and with other elements of the soil.

## PREFACE, BY THE MANUFACTURERS OF PROF. LIEBIG'S MANURES.

THROUGH accurate knowledge of what elements of the soil serve to nourish our cultivated plants, and are thus removed with the crops, minute examinations of those properties which give to the different kinds of stable manure their fertilizing effects, and careful investigation of the causes why the substitution of guano and other artificial manures has in some cases produced highly beneficial results, while in others it has proved utterly inefficacious—why successful only in some seasons, and upon some descriptions of soil—the eminent chemist whose name is attached to the succeeding Address has discovered certain compounds which can not only be employed with advantage in place of the best stable dung, but which, possessing none of the defects of guano, are of such a nature that different states of moisture in the atmosphere during the growth of the plants, or different localities, will not diminish their efficacy.



It is a well-known fact in vegetable physiology that all plants do not extract from the soil the same solid and volatile mineral elements: the elements removed in a crop of wheat are different from those taken in a crop of turnips or potatoes, &c. &c.; it is obvious, therefore, that to give to the soil a compound without discrimination as to the crop to be grown is a waste of material, and the invention of the Professor, which is protected by patent, is consequently applied to the fabrication of manures suited to every kind of crop.

Though the fertility of our fields depends mainly on the mineral ingredients of the soil, it must not be assumed that their state or condition is without influence; and it is not pretended that in using these manures the mechanical operations which are known to increase the capability of production are to be dispensed with; on the contrary, where those operations are carried on according to the best and most improved principles, the efficacy of the manures will be the greatest, their office being to replace what has been removed and what is indispensable toward securing a crop. And, although the inventor has given such elements to the compounds as to render them agreeable to all descriptions of soil, it would not be without utility toward particular adaptation, that the manufacturers were informed of the general qualities of the soil for which they are required: whether arenaceous or calcareous, clayey or loamy, light or stiff.

As regards the cost attending the use of these manures, a slight consideration of the subject will show that manuring with them will be cheaper than manuring in the ordinary way. For instance, take the wheat manure; the price is ten pounds a ton; but five cwt. only are required for an acre, and as every particle is adapted to and acts favorably on the crops, the farmer pays only for what is useful to him, whereas hitherto he has furnished his lands with the unnecessary and useless along with the necessary and useful, paying for both at the same rate. Farther, it is the object of these manures to render the change of crops and fallowing unnecessary and superfluous: WITH THEIR USE ONE AND THE SAME KIND OF CROP MAY BE GROWN YEAR AFTER YEAR UPON THE SAME FIELD.

It has already been observed that the composition of the "Patent Manures" is such as to counteract the doubtful qualities of guano. It is therefore proposed to those farmers who use stable dung or guano, to apply at the same time the "Patent Manures" as a top-dressing, although not in the same quantity as if no other manure had been used. The farmer will, of course, be best able to arrange this according to his other expenses.

In using the "Patent Manures," lime and gypsum, &c., for grass-lands, both sown and meadow, and for clover, can be entirely dispensed with.

The "Patent Manures" may be applied either broadcast or in drills. If the manure is strewed over the surface, every small shower will dissolve some of its elements; the water thus saturated will filter through the soil, and bring them into contact with the absorbing ends—the roots. At all events, it may be regarded as a rule that the "Patent Manures" are to be placed near the surface, and at a little distance from the seed.

The manufacturers having placed the fabrication under the superintendence of a highly respectable chemist—chosen by Professor Liebig—can assure the public that no manure will leave their premises without containing its full quantity of fertilizing matter, in exact accordance with the principles of the inventor.

Manure of each kind will be ready for the sowing seasons, and as the time for wheat is approaching, we respectfully request those parties who purpose using No. 1, to inform us of the quantity they will require as early as possible.

In conclusion, we may suggest that, as the solution of the problem of artificial manures is one from which the greatest benefit must arise to the community at large, all results of our manures should be communicated to us, or be made as public as possible.

The manures are classed as follows: No. 1. Manure for wheat, rye, barley, oats. 2. Potatoes, turnips, mangel-wurzel, beet-root, parsnips, and all bulbous roots. 3. Grass. 4. Clover, lucern, peas, beans. 5. Tobacco. 6. Flax.

The price per ton is £10 net cash, for wheat manure in Liverpool.

MUSPRATT & CO.

## THE PRINCIPLES OF ARTIFICIAL MANURING.

BY PROFESSOR JUSTUS LIEBIG.

If we compare the experience of farmers regarding the fertility of the soil and the quantity of its productions, we are surprised by a result which surpasses all others in general application and uniformity.

It has been observed, that in every part of the globe where Agriculture is carried on, in all varieties of soil, and with the most different plants and modes of cultivation, the produce of a field on which the same or different plants have been cultivated during a certain number of years, decreases more or less in quantity, and that it again obtains its fertility by a supply of excrements of man and animals, which generally are called manure; that the produce of the fields can be increased by the same

matters, and that the quantity of the crop is in direct proportion to the quantity of the manure.

In former times scarcely any attempt was made to account for the cause of this curious property of the excrements of man and animals. Without taking into consideration the origin of the excrements and the relation they bear to the food, it is not astonishing that their effect was ascribed to a remnant of vital power which should qualify them to increase the vitality in plants. Ascribing their influence on the fertility of the fields to an incomprehensible occult cause, it was forgotten that every force has its material substratum; that with a lever, in a mathematical sense,

which possesses no extension and gravity, no effect can be produced, no burden raised.

Guided by experience, which is the fundamental basis of all inductive science, and which teaches us that for every effect there is a cause, that every quality, as, for instance, the fertility of a field, the nourishing quality of a vegetable, or the effect of a manure, is intimately connected with and occasioned by something which can be ascertained by weight and measure; modern science has succeeded in enlightening us on the cause of the fertility of the fields and on the effects which are exercised on them by manure.

Chemistry has shown that these properties are produced by the composition of the fields; that their fitness for producing wheat or any other kind of plant bears a direct proportion to certain elements contained in the soil, which are absorbed by the plants. It has likewise shown that two fields, of unequal fertility, contain unequal quantities of these elements; or that a fertile soil contains them in a different form or state from another, which is less fertile. If the elements are contained in the soil in sufficient quantities, it produces a rich crop; if it be defective even in one of them only, this is shown very soon, by the impossibility of growing on it certain kinds of plants.

Moreover, it has proved with certainty what relations these elements of the soil bear to the development of the plants. Chemical analysis has demonstrated that a certain class of these elements is contained in the seeds; others, in different proportions, in the leaves, roots, tubers, stalks. They are mineral substances, and as such, are indestructible by fire, and consequently remain as ashes after the incineration of the plants or of their parts. Many of these elements are soluble in pure water, others only in water containing carbonic acid, as rain-water; all were absorbed from the soil by the roots of the plants in a dissolved condition. It has been shown that, in a field, those elements which remain after the incineration of the grain or seeds, are not present in a sufficient quantity, no wheat, no barley, no peas—in a word, none of those plants can be cultivated on that field which are grown on account of their seeds. The plants which grow on such a field produce stalks and leaves; they blossom, but do not bear fruit. The same has been observed regarding the development of leaves, roots and tubers, and the mineral elements which they leave behind after their incineration. If, in a soil in which turnips or potatoes are to be cultivated, the elements of the ashes of these roots are wanting, the plants bring forth leaves, stalks, blossoms and seeds, but the roots and tubercles are imperfect. Every one of the elements which the soil gives up to the plants is in a direct quantitative proportion to the production of the separate elements of the plants. Two fields, which, under otherwise equal circumstances, are unequally rich in mineral elements of the grain, produce une-

qual crops. One containing them in larger quantity produces more than another containing them in less. In the same manner, the capacity of a soil to produce tuberculous plants, or such as have many leaves, depends upon its amount of those elements which are found in the ashes of such plants.

It results from this with certainty, that the mineral substances which are furnished by the soil, and which are found again in the ashes of plants, are their true food; that they are the conditions of vegetable life.

It is evident, that from a field in which different plants are cultivated, we remove with the crop a certain quantity of these elements; in the seeds those mineral parts which the soil had to provide for *their* development, and in the roots, tubercles, stalks and leaves those elements which are necessary for *their* production. However rich the field may be in these elements, there can be no doubt that, by several cultures, it becomes more and more impoverished; that for every plant a time must arrive when the soil will cease to furnish, in sufficient quantity, those elements which are necessary for a perfect growth. Even if such a field, during many years, had produced twenty-five or thirty fold the amount of the seed, for instance, of wheat, experience shows that the crop gradually decreases, until at last the amount will be so small as to approach the plant in its wild state, and not repay the cost of cultivation.

According to the unequal quantity in which the mineral elements of grain, tubercles, roots, seeds, leaves, are contained in a soil, or according to the proportions in which they have been removed in the crop, the land may have ceased to be fertile for roots and tubercles, but it may yet produce good crops of wheat. Another may not produce wheat, but potatoes and turnips may thrive well in it. The mineral substances contained in a fertile soil, and serving as food to the plants, are taken up by them with the water, in which they are soluble. In a fertile field they are contained in a state which allows of their being absorbed by the plant and taken up by the roots. There are fields which are rich in these elements, without being fertile in an equal proportion; in the latter case they are united with other elements into chemical compounds, which counteract the dissolving power of water. By the contemporaneous action of water and air—of the oxygen and carbonic acid of the atmosphere—these compounds are decomposed, and those of their constituent elements, which are soluble in water, but which had been insoluble by the chemical affinity of other other mineral substances, reobtain the property of being absorbed by the roots of the plants.

The duration of the fertility of a field depends on the amount of the mineral aliments of plants contained in it, and its productive power for a given time is in a direct proportion to that part of its composition which possesses the capacity of being taken up by the



plant. A number of the most important agricultural operations, especially the mechanical, exercise an influence on the fertility of the fields only thus far, that they remove the impediments which are opposed to the assimilation of the mineral food into the vegetable organism. By plowing, for instance, the surface of the field is made accessible to air and moisture. The nutritious elements contained in the soil in a latent state, acquire, by these operations, the properties necessary for their transmission into the plants. It is easy to conceive the useful influence which, in this respect, is exercised on the produce of the fields by the care and industry of the farmer. But all these labors and efforts do not increase the amount of mineral elements in the field: in rendering soluble in a given time a larger quantity of the insoluble substances, and obtaining by these means a richer crop—the time is merely hastened in which the soil becomes exhausted.

The experience of centuries has shown that, with the aid of manure, of the excrements of animals and man, with which we supply those fields which have ceased to produce crops of grain, &c., serving as food for man and animals, in a sufficient quantity, the original fertility can again be restored; an exhausted field, which scarcely yielded back the seed, is made to produce a twenty and more fold crop, according to the proportion of the manure provided.

Regarding the mode of action of manures, it has been observed that all excrements do not exercise an equal influence on plants. The excrements of sheep and cattle, for instance, increase in most fields the crop of roots and herbaceous plants to a far greater degree than those of man and birds, (guano.) The latter act far more favorably on the production of grain crops, especially if they are added to the animal excrements, and are given to the fields at the same time.

A field, for example, which has lost its fertility for potatoes and turnips, but on which peas and beans still thrive, becomes far more fertile, by a supply of the excrements of horses and cows, for a new crop of potatoes and turnips, than by manuring it with the excrements of man or with guano.

The most accurate experiments and analyses have pointed out that the excrements of man and animals contain those substances to the presence of which the fertility of the soil is due. The fertilizing power of manure can be determined by weight, as its effect is in a direct ratio to its amount in the mineral elements of the food of plants. The truth of the result of these chemical analyses must be evident to every one who inquires into the origin of excrements.

All the excrements of man and animals are derived from the plants of our fields; in the oats and hay which serve as food for the horse, in the roots which are consumed by a cow, there is a certain quantity of mineral ingredients. A horse, in consuming 15 lbs.

of hay and 4½ lbs. of oats per day, consumes 21 ounces of those substances which the hay and the oats took from the fields; he consumes annually 480 lbs. of these constituent elements of the soil, but only a very small portion of them remains in his body. If a horse, during one year, increases 100 lbs. in weight, this increase contains only 7 lbs. of those mineral substances which were contained in the food. But what has become of the 473 lbs. which we cannot detect in his body?

The analysis of the fluid and solid excrements which the horse gives out daily, shows that the ingredients of the soil which do not remain in the body of the animal are contained in its excrements; it shows that in an adult animal, which from day to day neither increases nor decreases in weight, the amount of the mineral ingredients of the excrements is equal in weight to the mineral ingredients of the food.

As with the horse, so it is with all animals. *In all adult animals the excrements contain the ingredients of the soil according to the quantities and relative proportions in which they are contained in their food.*

The mineral substances of the food which have remained in the body of the animals, and served to increase their weight, are found again in the bones and excrements of man, who consumes the flesh of these animals.

The excrements of man contain the elements of the soil, of bread or of grain, of vegetables and meat.

These discoveries explain, in a most simple and satisfactory manner, the fertilizing effect which manure produces on our fields.

It is now obvious why manure renders again fertile the exhausted fields; why, by its means, their productiveness can be augmented; why the latter is in a direct ratio to the quantity of manure administered.

The exhaustion of the soil by subsequent crops, its decrease in fertility, is produced by the gradual removal of the mineral elements, in a soluble state, which are necessary for the development of our cultivated plants. By a supply of manure they are again restored to the state suited to serve as nourishment to a new vegetation.

If the supply of the removed elements of the soil, by means of manure, be sufficient, if the quantity taken away be restored, the original fertility reappears; if the supply be greater, the produce increases; a defective supply gives a smaller produce.

It is now explained why the different kinds of manure exercise an unequal effect upon the fields.

The excrements of man and guano, containing especially the mineral ingredients of grain and of meat, exercise far greater influence on the amount of produce of grain in a field in which these ingredients are wanting, even if those of the leaves and stalks are present in sufficient quantity, than the excrements of an animal which feeds on roots or green fodder.



The excrements of the latter contain the mineral elements of the leaves, stalks, and roots in prevailing quantity, and have a greater value for the production of roots and foliaceous plants than those of man or of birds, which contain only a small quantity of those mineral substances which they require for their development.

If we compare, for instance, the composition of guano with the excrements of the cow—solid and fluid excrements in the same state of dryness—it is found, that in an equal weight, the latter contain five to seven times more of the mineral ingredients of turnips and potatoes than the former. If, in a soil which is deprived of all those mineral substances, we wish to force a crop of turnips by means of guano, we require at least five times more of guano than dung of cattle.

The same thing happens, though *vice versa*, if we wish to produce a rich crop of grain by means of animal excrements; in this case, one part of guano and five parts of animal excrements, produce the same effect as thirteen to fifteen parts of animal excrements.

To understand the proper meaning of these numerical proportions, it is sufficient to mention that 400 lbs. of bones contain as much phosphoric acid as 1,000 lbs. of wheat; these 400 lbs. of bones can furnish sufficient phosphoric acid to eight acres.

If we take the importation of bones into Great Britain in the last ten years to amount to 1,000,000 of tons, enough phosphoric acid has been supplied to the fields for 25,000,000 tons of wheat; but only a small proportion of the phosphoric acid of the bones is in a state to be assimilated by the plants and applied to the formation of grain. The plants, in order to apply the other far greater part of the phosphoric acid to their formation, must find a certain quantity of alkaline bases beside the bone-earth, which are not given to the plants in the bones, because they contain neither potash nor soda.

To have increased the fertility of the fields in the right proportion, 800,000 tons of potash ought to have been added to the 1,000,000 tons of bones, in a suitable form.

The same is the case with guano: 60 to 100 lbs. of it are sufficient to furnish phosphoric acid to one acre of turnips; but the four to eightfold quantity is required to furnish the turnips with the necessary alkaline bases, and it is still doubtful whether they can be at all provided with the latter, by means of the salts with the alkaline bases, which the guano contains.

At a time when the necessity of the mineral substances for the growth and development of plants, and the direct relation which the effect of manure has to its amount of the same substances, had not been ascertained, a prominent value was ascribed to the organic matters which it contains. For a long time it was thought that the produce of a field of those substances containing nitrogen, which serve as food for man and animals, stood

in a direct proportion to the nitrogen contained in manure. It was believed that its commercial value, or its value as manure, might be expressed in per cents. by its proportion of nitrogen, but later and more convincing observations have induced me to contradict this opinion.

If the nitrogen and carbonic acid formed by the decay and decomposition of the vegetable ingredients of manure were the cause of its fertilizing power, this ought also to be seen if the mineral substances were excluded. Direct experiments have shown that the nitrogen of the excrements can be assimilated by the plants in the form of ammonia, but that ammonia, as well as carbonic acid, although it is indispensable for the development of all plants, can accelerate the growth of plants and increase the produce of a field of grain, roots and tubercles *only*, if, at the same time, the mineral ingredients contained in the manure which is applied, are in a state in which they are suited for assimilation. If the latter are excluded, carbonic acid and ammonia have no effect on vegetation.

On the other hand, experience has shown that on many fields produce which is rich in carbon and ammonia, can be increased to an extraordinary amount, without any supply of such matters as furnish these substances.

On fields which are provided with a certain quantity of marl or slaked lime, or with bone-earth and gypsum—substances which cannot give up to the plants either carbon or nitrogen—rich crops of grain, tubers and roots are obtained in many places, entirely in contradiction with the view which ascribes the effect of the manure to its amount of ingredients containing nitrogen or carbonic acid.

To explain this process, which is so opposite to the common opinion, the marl, the lime, the gypsum, the alkalies and the bone-earth were regarded as stimulants, which acted on the plants like spices on the food of man, of which it was believed that they increased the power of assimilation, and allowed the individuals to consume larger quantities of food.

This view is contradicted, if we consider that stimulants mean such substances as do not serve for the nourishment of the organism or for the formation of organic elements, and can only increase the weight of the body, if at the same time a certain increase of food is given. In supplying the fields with the above mentioned substances, the weight of the plants became increased in all their separate parts, without their having been provided with the quantity of food which according to theory, was necessary to this extraordinary increase—viz., with carbonic acid and ammonia.

Chemical analysis shows that these so-called stimulants are either actual ingredients of manure, as gypsum, bone-earth and the active substances of the marl, or that they are the means by which the mineral elements contained in the soil are resolved into a state

adapted for being assimilated by the plants; this is generally effected by the application of slaked lime. They consequently exercise on the vital process of the plants not a mere stimulus like the spices, but are consumed for the development of the leaves, seeds, roots, &c., they become constituent parts of them, as can be shown with certainty by chemical analysis.

The success which has followed the application of these substances to the fields has explained, in a most striking manner, the origin of the carbon and nitrogen in the plants.

In the marl, in the bone-earth, in the gypsum, in the nitrate of soda, no carbon is provided to the fields; and yet, in many cases, the same produce, in some even a higher one, is obtained, than by the application of a manure containing carbon and nitrogen. As the soil, after the crop, does not contain less carbonaceous or nitrogenous substances, it is evident that these products, which had been obtained without any carbonic or azotic manures, must have got the carbon and nitrogen of their leaves, roots and stalks from the atmosphere; it follows, therefore, that the productiveness of the fields cannot be increased in proportion with a supply of carbonaceous and azotic substances, but that the fertility depends only on the supply of those ingredients which should be provided by the soil.

The soil not only serves the purpose of fixing the plants and their roots; it participates in vegetable life through the absorption of certain of its elements. If these elements are present in sufficient quantity, and in appropriate proportions, the soil contains the conditions which render the plant capable of absorbing carbonic acid and ammonia from the air, which is an inexhaustible storehouse for them, and renders their elements capable of being assimilated by their organism.

The agriculturist must, therefore, confine himself to giving to the field the composition necessary to the development of the plants which he intends to grow; it must be his principal task to supply and restore *all* the elements required in the soil, and not only one, as is so frequently done; the ingredients of the air, carbonic acid and ammonia, the plants can, in most cases, procure without man's interference; he must take care to give to his field that physical condition which renders possible and increases the assimilation of these ingredients by the plant; he must remove the impediments which diminish their effect.

The favorable influence which bone-earth, gypsum, nitrate of soda, exercise on the fields has induced many farmers to the belief, that in applying them they can dispense with manure or with the other elements of the soil; it requires, however, only little attention to see the great error of this opinion. We observe that the effect of these substances is not equal on all fields; in one place the amount of produce is increased by the lime, by the bone-earth, and by gypsum; in another country, or on other fields, these substances in no

way favor vegetation. From this arise the contradictory views of farmers regarding these matters as manures. If one farmer thinks the liming of his fields quite indispensable for rendering them fertile—another declares that lime produces no effect at all.

The reason of this difference is very simple. The examination of a soil upon which lime has had no effect, shows that it was already rich in this substance: it farther shows that its effect extends only to those kinds of soil in which lime is wanting, or in which it is found in too small a quantity, or in a condition which is not suited to its assimilation by the plant. Lime especially serves for resolving the silicates of alumina (clay) and consequently it cannot fertilize soils in which clay is wanting, for instance, sandy soils. It must be apparent to every one, that on the calcareous and gypseous fields of France and England one-half per cent. of gypsum or lime can have no influence at all on vegetation. This can be said with equal justice of bone ashes, and of every other mineral substance serving for the nourishment of plants.

If these substances exercise a favorable effect, some of the constituents of the soil or manure are restored, which are indispensable to the nourishment of plants, and which have been wanting in the soil. If this be the case the other bodies, equally necessary, must be present in sufficient quantity. On a field in which sulphate of lime has acted favorably, but in which clover had been cultivated without it, the crop was 2,200 pounds of clover-hay, in which 53 pounds of potash were removed. On the same field, after it had been dressed with gypsum, 8,000 pounds of hay were produced, which contained 191 pounds of potash. If this potash had not been present in the soil, the gypsum would have had no effect—the crop would not have been increased. On fields which are richly provided with all other mineral ingredients, with the exception of gypsum, the latter is applied with the greatest success. But if gypsum is present in the soil, the same effects are produced by ashes and lime, as is the case in Flanders. On fields in which phosphate of lime is wanting, bone ashes increase the produce of grain, clover, or grass, and on argillaceous soil, lime produces a decided improvement. All these substances act only on those fields which are defective in them, and if the other elements of the soil are present. The latter cause the former to come into action, and *vice versa*. The farmers who thought that by using lime, gypsum, bone-earth, &c., they might dispense with animal manure, very soon observed that their fields deteriorated. They observed that after a third or fourth successive manuring with those simple substances the produce decreased; that, as is the common expression, the soil became tired of the manure, that at last the field scarcely produced the seed.

It is evident from this, what is the action of the mineral elements in the soil. If in fact,



in the first years, the produce of the soil had increased by the application of bone ashes, or by a single element of the manure—if this increase was dependent on the amount in the soil of the other mineral elements, a certain quantity of those was annually taken up by the plants and removed in the harvest, and a time must at last arrive in which it is exhausted by the repeated removal; the soil must become barren, because of all removed elements only one or the other, and not all of them in a right proportion, have been restored.

*The right proportion of the supply is, however, the only true scientific basis of Agriculture.*

If we subject the fluid and solid excrements of men and animals to an exact analysis, and compare the elements of them according to their weight, some constant relations between these elements impress themselves upon the mind, the knowledge of which is of some importance.

If the excrements of an animal are collected with some care and left to themselves for some days, their nitrogen appears to have been converted more or less perfectly into ammonia. In the fluid excrements, in the urine, the salts of the food, which are soluble in water, are found in the form of alkaline carbonates, or of sulphates, phosphates, and other salts, with alkaline bases. In the solid excrements or feces, silica, if it was contained in the food, earthy carbonates, and phosphates are the principal ingredients.

The quantity of alkaline carbonates bears a certain proportion to the amyllum, sugar, pectine, or gum of the food. The urine of an animal which has been fed with potatoes or turnips, is rich in alkaline carbonates; the potatoes, however, consist principally of amyllum; the chief ingredients of the turnips are sugar and pectine. The urine of a horse which has been fed with hay and oats, is comparatively poor in alkalies, if compared with the former.

It is farther shown that the ammonia or the nitrogen of the excrements bears a certain proportion to the phosphates; the azote increases or decreases with the quantity of the phosphates in a manner that both can serve as a measure for each other, although not quite as an accurate one. It is not quite accurate, because the gum and the amyllum also contain a certain, although small, quantity of phosphate of lime, as has been proved in my laboratory.

The ammonia of the excrements is of course derived from the nitrogenous substances in the food: the phosphates are likewise constituents of the latter. In the composition of the food an equally constant proportion exists between both. A given weight of gluten or casein in peas or in grain always corresponds with a certain weight of phosphates; if the grain or the vegetable is rich in these nitrogenous products of vegetable life, it is also rich in phosphates; if it is defi-

cient in them the quantity of the latter decreases in an equal ratio.

As the amount of nitrogen in manure is a measure for its amount of phosphates, and as the manure contains besides these the other ingredients of the soil which are required by the grain or by the other vegetables for their development, and taken up by them from the soil, it is easily conceived what was the cause of the error in regarding the nitrogen of the manure as the principal cause of its efficacy. The reason was, that the ammonia of the manure is always accompanied by the mineral elements which affect its nourishing qualities, because they render its assimilation into the organism of the plant, and its transition into a nitrogenous constituent, possible. Without phosphates, and without the other mineral elements of the food of plants, the ammonia exercises no influence whatever upon vegetable life.

If it has been shown that the fertility of the soil depends on certain mineral substances; if the restoration of the fertility of exhausted fields by means of the excrements of man and animals depends on their proportions of these matters; if the effect of the manures *accelerating* the vegetation depends upon their proportions of ammonia, it is clear that we can only dispense with the latter when we provide *all* efficacious elements exactly in those proportions and in that form most proper for assimilation by the vegetable organism in which they are found, in the most fertile soil or in the most efficacious manure.

According to our present knowledge of the effect of the constituent parts of manure, I feel convinced that it is indifferent to the plants from which source they are derived. The dissolved apatite (phosphate of lime) from Spain, the potash derived from felspar, the ammonia from the gas-works, must exercise the same effects on vegetable life as the bone-earth, the potash, or ammonia, which we provide in manure.

We live in a time when this conclusion is to be subjected to a comprehensive and accurate trial, and if the result corresponds with the expectations which we are entitled to form, if the animal excrements can be replaced by their efficacious elements, a new era of Agriculture must begin.

I invite the enlightened farmers of England to unite with me for that purpose, and to lend me their aid. Whatever may be the result of these experiments, it is necessary for the future prosperity of Agriculture that they should be made. They will enrich us with a number of valuable facts—we shall ascertain where we have wasted efficacious matters in the common course of farming—we shall acquire an exact knowledge of those substances which are necessary and of those which are dispensable.

For a number of years myself and many talented young chemists have been occupied with the analysis of those mineral substances



which are constituent elements of our plants of culture, and with the examination of the excrements of man and animals, as well as of a great number of soils acknowledged as fertile. These labors have been before the scientific world long since, but only a very confined application has been made of them in Agriculture.

The farmer is by his position not in the condition to procure and command the efficacious elements necessary for the restoration and increase of the fertility of his fields in a right proportion and suitable form. For this purpose, science and industry must combine their aid.

I have been so fortunate as to remove the difficulties which are opposed to the application of a mere mixture of the elements of manure. If we employ the different elements of manure exactly in those proportions in which they are necessary according to experience, for a rich crop of wheat, peas, turnips, potatoes, &c., and if, at the same time, we leave them in their common state, they do not produce that effect which we might have expected; the cause of this is that the different elements of manure possess a very unequal stability, the ammonia evaporates, the soluble elements are carried off by the rain, and the effect is more in proportion with the amount of those ingredients of the manure which are less soluble.

I have found means to give every soluble ingredient of manure, by its combination with others, any degree of solubility, without altering its effect on vegetation. I give, for instance, the alkalies in such a state as not to be more soluble than gypsum, which, as is well known, acts through many years, even as long as a particle of it remains in the soil.

The mixture of the manures has been adapted to the mean quantity of rain in this country; the manure which is used in summer has a greater degree of solubility than that used in winter. Experience must lead to farther results, and in future the farmer will be able to calculate the amount of produce of his fields, if temperature, want of rain, &c., do not oppose the manures coming fairly into action.

I must, however, observe that the artificial manures in no way alter the mechanical condition of the fields, that they do not render a heavy soil more accessible to air and moisture. For such fields, the porous stable manure will always have its great value; it can be given together with the artificial manure.

Messrs. Muspratt and Co. have undertaken to execute my prescriptions on a large scale, and they are prepared to have ready a quantity of manure in autumn, for wheat, clover, etc., to satisfy the orders of the farmers. One of my former pupils, now Professor of Chemistry as applied to arts and manufactures, in this University, is to superintend the fabrication of these different manures; all necessary

guaranties are therefore given as regards their composition.


To prepare for the coming autumn a sufficient quantity of manures, it is necessary that the orders be given at the earliest possible time. It would be very expedient in case that different kinds of soil are cultivated in a farm, to acquaint Messrs. Muspratt and Co. with the fact, as the proportions regarding silica are different for clayey and calcareous soils, to which latter, in order to render them fertile for grain, more of an easily dissolving silicate must be added.

All manure which is to be used during next winter contains a quantity of ammonia corresponding with the amount of nitrogen in the grain and crops which are to be grown. Experiments, in which I am at present engaged, will show whether in future times the cost of this manure can be greatly lessened by excluding half or the whole amount of ammonia. I believe that this can be accomplished for many plants, as for clover and all very foliaceous vegetables, and for peas and beans; but my trials are not so far advanced as to prove the fact with certainty.

(Signed) DR. JUSTUS LIEBIG.

Gießen University, 1845.

**NOTT'S ELECTRIC TELEGRAPH.**—An experiment, completely successful, was witnessed on Saturday last, in the Isle of Wight, of the powers of Mr. Nott's Electric Telegraph. A perfect and rapid communication was established between East and West Cowes by means of a single wire sunk across the Channel. The telegraphs were attached, one being placed at Medina Hotel, and the other at the opposite side of the Channel, near the Fountain Hotel. The signal bells were then rung simultaneously, and the telegraphs commenced working and communicating questions and answers with the greatest precision and certainty with a galvanic battery of low power, showing that a single isolated wire immersed in the water would carry the electric current a distance of half a mile. The water brought back the current to its source, without the slightest perceptible dispersion or loss of the dynamic power. This experiment demonstrates the perfect practicability of submarine communication, and the question as to its application may be said to be satisfactorily solved. The consequences can scarcely be as yet appreciated, though they are wonderful to contemplate. Instantaneous communication may be established between places divided by estuaries and channels, and islands and continents brought into immediate proximity of correspondence.

 A French engineer, M. Doumel, proposes to dig a number of Artesian wells along the great African Desert; and thus to connect Algiers and Timbuctoo.

## A GREAT INVENTION IN THE MANUFACTURE OF BRICK.

## HALL'S MACHINE—HOW CONNECTED WITH AGRICULTURE.

THERE are so many inventions brought forward under high sounding pretensions to originality and usefulness, which really have not the merit of either, that when something that is labor-saving and valuable is presented, we feel disposed to go a little out of the way to bring it into public notice and favor, even though it be not *exactly* in the agricultural line, as is the case with this brick-making machine of Mr. Hall. The business of brick-making, however, like every other town employment, is connected with Agriculture in ways alike various and obvious. The more people there are in towns and the more prosperous they are, so much the better for the farmer. Whatever, then, has a tendency to make it easier and cheaper to live in town, works well for him of the country; because by increasing consumers it increases demand for all that he of the country has to sell. As the labor-saving inventions of men of genius reduce the expense of building, houses may be supplied in greater number, and rents may be reduced. In this way all improvements in carpentering and brick-making are beneficial to the agricultural interest. To that interest, the occasion (turning up casually as it does,) tempts us to say that nothing can well be more narrow-minded and preposterous than the low jealousy which small-minded men evince and inculcate toward the populations of large towns—a feeling yet more reprehensible when it has any foundation in the envy that some men feel toward those whom they suppose to be more prosperous than themselves. It is very true that the general drift of the legislation of our States and General Government is to favor and protect the concerns of *particular classes* in disregard of the general, and more particularly of the landed interest; but this is the fruit of their own (the country people's) want of concert, intelligence, and spirit to *take care of themselves*. More especially is it the fruit of defective education in all that is particularly calculated to enlighten them in the practical principles and the political rights of Agriculture: and so will it ever be until they begin to *think* and to *act for themselves*—and until they give proper support to presses devoted to their welfare. In this country, above all others, where the Press is free, it is all powerful. It forms and sways public opinion, and dictates the legislation of States. The editors are at once our schoolmasters and our preachers. Well, see how they stand in relation to the two great concerns of society—Education and Agriculture! Take Maryland and Virginia as examples. In Maryland we have, at the lowest calculation, papers made up of news, party politics and advertisements:

Weeklies .....	42	Dailies .....	5
Total .....	47.		

In Virginia—papers made up of news, party politics, and advertisements:

Weeklies—Tri and Semi-Weeklies ...	34	Dailies .....	8
Total .....	42.		

While there is not one, that we know of, elucidating the great subject of *education*, and the agriculturists have appropriated to their pursuit *one only in each*

*State*—and these published at only one dollar a year, and poorly supported at that—*Even one bushel of corn is grudged for papers* either one of which, if read and followed with attention, would teach them to add at least two bushels to every acre they cultivate! What care can such people have for their own minds? What for the intellectual character and power of their own sons in reference to the very business of their lives? But how can one reason or write with patience in view of facts so calculated to overcome the mind with surprise, not to say disgust! Well, what has all this to do with *Mr. Hall's Brick-Making Machine*? So let us return to that.

A much respected correspondent and friend having written to us respecting Mr. Hall's Machine, led to a personal interview with him, in the course of which he placed in our hands the accompanying description, as published in *The Farmer and Mechanic*. We only take enough of it to gratify the curiosity of the general reader, and to give an idea of what the machine will do. To go farther into a description of the manner of laying off brick-yards, and the details of drying and burning, would be to wander too much from the design of this work, and to occupy more space than we have at command.

The engraving represents a machine for making brick patented in the United States and Great Britain, by ALFRED HALL, of Perth Amboy,\* New-Jersey, showing a pit in which the clay is soaked, the mill for grinding it, and a moulding machine as attached when in operation.

From four to five hands compose what is

called the moulding gang: the shoveler, called a machine tender, a moulder, and from two to three off-bearers. These must all move on regularly, and keep up with the horse; they will make from eight to fourteen thousand bricks per day, the number depending upon the size of the brick and the convenience of the work.

Various statements have been published, for which we have not room. At some inconvenience we *make* room for the following, and will here say that we should repose full confidence in any statement of facts that Mr. Hall would make about the merits and capacity of the machine.

AMBROSE BAKER, of Coxsackie, N. Y., thus remarks: "I have made bricks twenty-two years—nineteen years by hand, and the last three years with Hall's machines. I have six machines—running three alternately each day. I have made this season 3,300,000 in five months, with twenty-seven men—at least one-fourth more than I could have made with the same number by hand. They were all moulded by three men, and the quality is greatly improved—being more dense, and having a smoother surface. 25,000,000 have been made with these machines at Coxsackie the past season, and they have caused an entire revolution in the brick manufacture. The machine works like a charm. Numerous kinds had been tried, and great expense incurred, but no machine would work our clay successfully before we tried this. Now, none of our brick-makers could be induced to dispense with them."

EDWIN WILSON, of Rochester, stated before the Institute as follows: "I have made brick at Rochester for twenty years—made 1,500,000 the past season in less than five months, with one of Hall's patent machines, for which I gave \$200. I want another, but the holders of the patent for Rochester will not sell me one for any price. As I cannot

get another, I would not take \$1,500 for this. I employed eleven men, and have sold my brick, delivered, for \$3 per thousand (it costing 63 cents per thousand to deliver them,) and have made a fair profit. Mr. Buckland's brick are used for *fronts*, instead of *pressed brick*, and I think no more pressed brick will be used at Rochester, as those made by the machine present as good and handsome fronts as the pressed article."

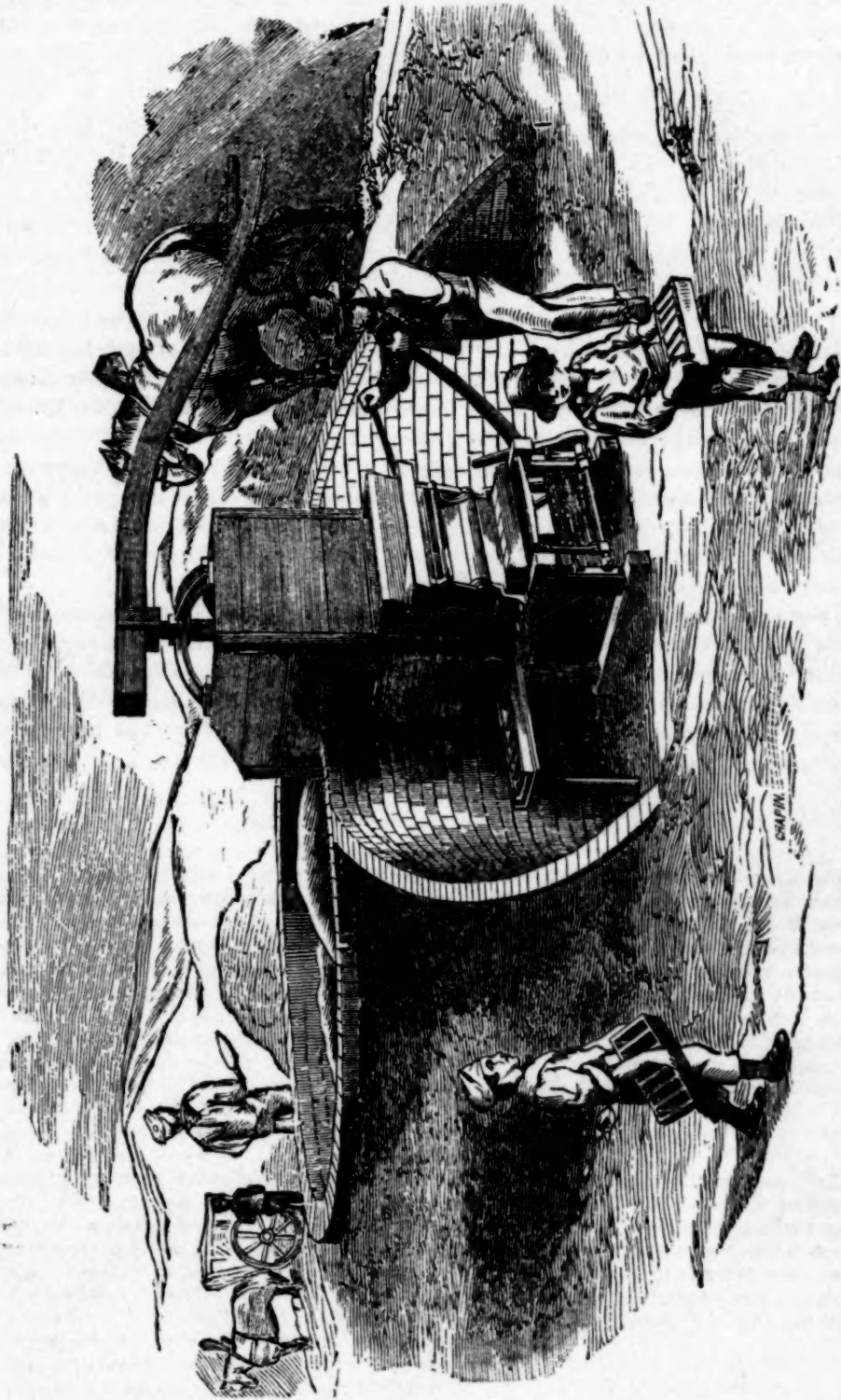
WILLIAM WORMAN, of Allentown, Pa., remarks: "My business this season has been first rate, and although the machine was started late, I have made 600,000 with it, and No. 1 bricks too. I like the machine better every day, and am satisfied that I can make more and better bricks than any other establishment in the country."

PETER HUBBELL, of Charlestown, Mass., states, in a letter to the Institute, Dec. 9, 1846: "We have been engaged in the manufacture of brick for the last twenty years, most of the time on the Hudson River; but for three years past in this State, within four miles of Boston. During all this time we have sought for and adopted many of the improvements in the business, many of which we have cast aside as worthless. Moulding machines were invariably placed with the latter class, until

\* Recently from Coxsackie, New-York.



we found and adopted Mr. Hall's machine, which we have used for the last three years, in different and nearly all kinds of clay, to our entire satisfaction. It is simple in its construction, easily kept in order, and can be worked by men of the most ordinary capaci-



HALL'S BRICK-MAKING MACHINE.

ty, moulding with ease from ten to twelve thousand per day, and better bricks than can be moulded by hand or by any other machine. We have had thirty of them in use for the last three years, using fifteen of them alternate days, making each year about 15,000,000 bricks, and for that time the expense of repairing them not exceeding ten dollars."

The (London) *FARMER'S MAGAZINE*, speaking of this machine, says: "It is the invention of an American brick-maker, and in general operation throughout the United States. It is so simple and efficient in its construction and performance, that it seems destined here also to take the lead. It consists of a pug-mill upon an improved principle, to which the

moulding apparatus is so attached that the clay, after passing through it, is forced immediately into a series of moulds prepared to receive it. The bricks made by this machine are much sounder and better than those made by hand; and with the power of one horse and two men, from 8,000 to 10,000 bricks can be produced per day.\*"

Communications should be addressed to "A. HALL, Perth Amboy, N. J."

### INTRODUCTION OF ALPACCAS INTO THE UNITED STATES.

WE had the satisfaction to announce to the Farmers' Club, at a late meeting, and have much pleasure in repeating it here, that the heads of Departments at Washington, with an alacrity that entitles them to great credit, gave all the orders necessary to facilitate the transportation of Alpaccas from Peru to the United States in Government vessels. Mr. J. D. WILLIAMSON having presented himself at Washington as the agent of the Agricultural Association of New-York, charged with that subject, a free passage was granted him at once handsomely and cheerfully, in one of our national ships, with permission to bring home as many of these sheep as can be conveniently accommodated on board, together with any seeds or plants that may be selected by him with a view to the promotion of improvement in, and addition to the stock of our agricultural and horticultural products.


These facilities were granted, of course, with the sanction of the Chief Magistrate, who, in lending his countenance to the enterprise, probably had in his mind the example of His Majesty the Emperor of China, the "brother of the Sun and Moon," who in the presence of admiring thousands, once a year takes the handles of the plow. We doubt if either of them was ever employed in a manner more conducive to the zeal and welfare and true glory of their country: not for the results of the particular act, but for its influence as an example.

**RHUBARB TARTINE.**—The inclosed recipe for making what I call, for want of a better name, "Rhubarb Tartine," will, I think, be of some use to cottagers, and others, as a cheap mode of using Rhubarb, and especially to those who find pastry unwholesome. Take as many Rhubarb stalks as will fill a baking-dish, and lay them in water for ten minutes; then grease a dish for baking, and put at the bottom of it some bread cut in slices about a quarter of an inch thick, toasted and soaked a few minutes in some boiling water poured into a plate with two table-spoonfulls of moist sugar in it. Cut the Rhubarb in pieces an inch long, and fill the dish; then put some slices of toasted bread soaked as before, to cover the top, and bake it about an hour and a half, or until well done. If the crust be cut from the bread after being toasted it will be the nicer.

[English paper.]

**LIME vs. THE POTATO DISEASE.** Having a few potatoes planted last year, which were infected by the prevailing disease, our gardener was instructed to try the experiment of putting a little quick-lime upon each plant, which was done, and when the tubers were taken up a few weeks afterward, they were found to be perfectly sound, but as a farther precaution they were put into bags with a very small quantity of quick-lime, and when taken out a few days ago they appeared to be perfectly free from taint. It is our intention to follow up this plan this season if necessary, and we recommend others to do likewise.

[Messrs. Beck, Henderson & Co., Middle Wharf, Adelphi, April 1847.]

 The British Colonies occupy an area of 2,119,708 square miles, with a total population of 107,708,323. Their exports and imports amount to £55,538,500.

\* Should have added two boys for carrying off.

## DAIRY HUSBANDRY—THE DAIRIES OF HOLSTEIN.

THE use of steam every year for a greater variety of purposes, the laying down of rail and plank roads, and opening canals, are working revolutions in the industrial economy of all sections of the country. This liability to change of circumstances requiring corresponding changes in the habits and pursuits of different localities, imposes the necessity for a greater variety of knowledge—that is, for a practical knowledge of a greater number of pursuits than formerly.

A grazing district this year may next year be converted into a farming one by being penetrated by a railroad and presented with facilities for transportation which it had never before enjoyed. We have long been impressed with the belief that, along with their fine climate, and cool fountains, and fragrant herbage in the mountain regions of the Southern States, there should be large flocks of sheep and ample dairies for the manufacture of butter and cheese—articles that, if well made, will bear to be kept until remunerating prices will pay for producing and sending them to market. To some of our patrons who entertain the same views—in fact to every curious and polite inquirer, we feel persuaded we may be making an acceptable offering in the following paper on

## THE DAIRIES OF HOLSTEIN.

HOLSTEIN butter is said to be (with the exception of that made in Holland proper) the best in the world. It may not be uninteresting to our readers to describe the process adopted in that Duchy for making that valuable article.

The Duchy of Holstein (together with the Duchies of Schleswig and Lauenburg) lies in a favorable position for commerce, being bounded by the Elbe and the German Ocean on the west, and by the Baltic on the east, while a ship canal unites the two seas. The climate is temperate, inclining to moisture; it does not materially differ from that of the midland country of England, except that the cold is more steady and severe in winter, while the summers are warmer and drier. The night-frosts in April and May are the most unfavorable circumstance affecting the interests of Agriculture; they are felt more than in England because the heat of the sun in the daytime is greater and the contrast, therefore, the more prejudicial. The soil is rich, and often receives accessions from the depositions of the river Elbe. The peculiarities of management in the Holstein dairies relate to the buildings and utensils; to the time of milking and number of hands employed; to the management of the milk; and to the mode of working, salting and packing the butter. These have been described by Mr. Carr in a communication to the Royal Agricultural Society, and may be thus shortly stated:

The buildings on a large dairy are a milk-cellar, a butter-cellar, a churning-house, with a horse-mill adjoining, a cheese-room and a kitchen, in which the utensils are washed and food is cooked for all persons immediately engaged in dairy work; to which are sometimes added their sleeping-apartments. The size and situation of the milk-cellar are deemed of great importance: it fronts the north, and is shaded from the summer sun by rows of trees, the elder being chosen especially, and planted as near the windows as possible, on account of the influence of this tree in keeping off insects. A thatched, projecting roof affords protection from the heat, and great care is taken in choosing the site of the dairy to place it out of the reach of anything that might taint the atmosphere. The size of the milk-cellar is regulated by the number of cows, but it is generally calculated to contain the produce of four milkings. The milk-dishes are placed on the floor, and usually occupy the space of two feet square each. Thus the produce of one hundred cows giving on an average eight quarts per day, would fill fifty milk-dishes at each milking, and would require a ground surface of five hundred square feet, as there must unavoidably be space left to enable



the dairy-maids to go through their various operations. The floor is sometimes flagged, but oftener of brick neatly fitted, so that no water may lodge in the joints, and always gently inclined, with a grating at the lower end to facilitate the washing of the floor, which is never omitted to be done twice a day, notwithstanding that every source of impurity is guarded against and every drop that may fall at the time of the milk being strained is carefully wiped up. A recent improvement is the dividing the floor into compartments with brick ledges from three to four inches high, between which the milk-dishes stand; the lower extremity of these compartments is fitted with a small sluice, and twice a day they are filled with cold water from a pump. Thus the milk is preserved so cool as to prevent all approach to acidity for several hours longer than when placed on a dry floor. In sultry weather a piece of pure ice is sometimes dropped into each milk-pan, or a pailfull of ice is placed in the dairy, which, by absorbing the heat, sensibly lowers the atmospheric temperature.

The best milk-cellars are sunk from three to four feet in the ground; they are from sixteen to eighteen feet high, with an arched roof, and two rows of windows looking north, east and west, to secure a thorough air. The lower range of windows consists of wooden trellis-work, provided inside with gauze frames, to exclude insects, and outside with hanging shutters, which can be lowered and elevated at pleasure. The upper range is furnished with glass sashes, which are exchanged for gauze frames when greater coolness is needed.

The butter-cellar also is light, airy and cool; it is likewise sunk in the ground and supplied, by the same means as the milk-cellar, with plenty of pure air. Here the butter, when carried from the churning-house, is worked, salted and packed. The filled butter-casks are ranged on clean boards a little elevated from the floor, to allow of a free passage of air, and are turned and wiped every week. Next in order comes the churning-house, which has much the same arrangements as we find common in England. Of late years the perpendicular movement of the churn-staff has been exchanged for the rotary, which is found to churn in a shorter time, and with less risk of oiling the butter. The cheese-room in these dairies is placed as far as possible from both the milk and the butter-cellars.

The persons required to conduct the business of the dairy are an overseer, a cooper, one or two cowherds, one or more swineherds, an upper dairy-woman, and dairy-maids in the proportion of one to every eighteen cows. The overseer takes care of the cattle, and is expected to know their diseases and the remedies. He is responsible for the conduct of the swineherd and cowherd, and superintends the fattening and rearing of calves. He also sees that the milking is thoroughly performed. When the number of cows does not exceed a hundred, he also undertakes the cooper's work; but in large dairies a cooper is kept in addition, who, besides his particular duties, assists in carrying the milk, feeding the cows when housed, &c. The wages of these two persons vary with the extent of the dairy, but may be averaged at sixty dollars for the first and forty for the second per annum.

The dairy-maids, besides milking, cleaning the vessels, &c., work in the garden in summer, spin in winter, and wash, bake, brew and cook for the establishment under the direction of the upper dairy-woman, who is by far the most important personage therein, as on her skill, attention and diligence depend, in a great measure, both the quantity and quality of the product. She must not only thoroughly understand, but accurately observe, the moment when the milk should be creamed; the degree of acidity it must attain in the cream-barrels; its temperature, whether requiring the addition of warm or cold water to the churn; as well as the subsequent operations of kneading, beating, salting and packing the butter. She must be punctiliously clean in her person and work, and require the same cleanliness of her maidens. In large establishments the upper woman has full employment without milking, and even requires assistance in her own department; but in smaller dairies she milks about ten cows. Her wages are from fifty-five to sixty dollars per annum, while her chief assistants receive twenty-two and the rest eighteen dollars.

During summer the dairy people of Holstein rise at three, or even two, in the morning, if the weather be very hot; for which exertion they are allowed two hours' sleep in the middle of the day. The milking is carried on in the field,

generally commencing at four, and lasting two hours. Each girl marks her own cows, by tying a particular colored ribbon around their tails; and in some places each milker carries a string, on which a knot is made for every cow that is milked, to prevent any from being forgotten. The fields are large, and often at a great distance from the dairy, but the milk is safely and easily transported by means of a long, low, four-wheeled one-horse wagon, in the side-bars of which strong iron hooks are inserted at such distances that the milk-pails, containing from thirty to forty quarts each, may swing free of each other; and these, though filled nearly to the brim, are prevented spilling by merely having thin pieces of wood, about the size of a dinner-plate, floating on the surface. The milk, when brought to the dairy, is immediately strained through a hair-sieve into the vessels placed to receive it. These vessels are of various materials: they may be of wood, earthenware, copper tinned, zinc, cast-iron lined with a China-like composition, or glass.

In order to secure butter of a first-rate quality, the cream is removed from the milk before any acidity is perceptible, and it has been found that a cellar temperature of from 60° to 62° Fahrenheit is the most favorable, allowing a complete dis-severment of the cream in thirty six hours; whereas a greater degree of warmth, while it quickens the separation, still more hastens the souring process, which injures both the quantity and quality of butter. In a cold temperature the separation is effected much more slowly, so that forty-eight and even sixty hours may be required; this, however, is the longest period which can be given without the risk of imparting a rank, unpleasant flavor to the butter. The first signs of acidity in milk are a very slight wrinkling of the cream, and a scarcely perceptible acid taste. The moment this is observed, the skimming commences, even if the milk have stood but twenty-four hours. The cream is poured through a hair-sieve (which is kept for the purpose and never employed in straining the new milk), into large barrels, containing about two hundred and forty quarts each, in which it remains until it is sufficiently sour, being stirred at intervals to prevent its becoming *cheesy*. The next object of the dairy-woman's skill is the degree of warmth or coolness which must be imparted in order to secure good butter.

In warm weather the churn is rinsed with the coldest water, in which a piece of pure ice is often thrown, and sometimes, though more rarely, cold spring water is added to the cream about to be churned, which operation is then always performed either very early in the morning or late in the evening. In cold weather, on the contrary, warm water is applied both to rinsing the churn, and to the cream itself.

The churning being completed, the butter is taken off by means of a large wooden ladle, and carried in a tub directly to the butter-cellar, where it is cast into a large trough, hollowed out of the trunk of an oak or beech, very smoothly polished inside, and provided with a plug-hole at the lower extremity, beneath which a small tub is placed to receive the expressed milk. There the butter is slightly worked, and salted with the purest salt, then moulded with a wooden ladle into a mass at the upper end of the trough, and left for some hours to soak and drain. In the evening it is thoroughly kneaded and beaten, or rather slapped, the dairy-maid repeatedly lifting a piece of from three to four pounds, and slapping it with force against the trough, so as to beat out all the milky particles; and thus lump after lump being freed from extraneous matter, the whole mass is spread out, receives its full proportion of salt, about an ounce and one-eighth per pound, which is worked with the utmost care equally through it, and again moulded into one compact mass. The butter in Holstein is scarcely ever washed, as water is believed to rob it of its richness and flavor and to be unfavorable to its preservation.

When a quantity is ready, sufficient to fill a cask, the several churnings are once more kneaded through, a very little fresh salt added, and the butter is packed in a barrel made of red beech-wood, water-tight, which has been prepared by careful washing and rubbing on the inside with salt. Great care is taken that no space shall be left either between the layers of butter, or the sides of the cask. In large dairies a cask is never begun to be filled until it can be completed, as thus alone the butter can be exactly of the same flavor and color throughout. The qualities of the excellent butter on which the Holsteiner prides himself, are *first*, a fine, even, yellow color, neither pale nor orange-tinted; *second*—



ly, a close waxy texture in which the extremely minute and transparent beads of brine are perceptible; but if these drops be either large or in the slightest degree tinged with milk color, it is considered as marking an imperfect working of the butter, while an entirely dry, tallowy appearance is equally disapproved; *thirdly*, a fresh fragrant perfume, and a sweet kernely taste; *fourthly*, the quality of keeping for a considerable time without acquiring an old or rancid flavor.

There are four qualities or varieties of butter known in Holstein. These are named, *Fresh-milk*, *May*, *Summer*, and *Stubble* butter, according to the season in which each is produced. The *Fresh-milk* butter is that made in the spring, between the time when the cows calve and their being turned out to pasture. The *May* butter is that produced in May, after the cows have been sent to grass. This is highly prized for its peculiarly fine aroma when fresh, but is found not to keep well, and, therefore, like the *Fresh-milk* butter, is generally sent to market as it is made. The *Summer* butter is made in June and July, and from that time till the cows are removed from pasture, the butter bears the name of *Stubble* butter. Both these latter sorts, if properly made, keep well, and retain their fine flavor nearly unimpaired until the following spring. The small quantity produced between the time of the cows being housed and becoming dry, is called *old-milk* butter, and is least of all esteemed.

In winter, when the cows are confined to dry food, and the butter loses its fine yellow color, artificial means are employed to remedy the defect; for the Holstein merchants find that without the usual degree of coloring, their butter will not in some markets (as in Spain and Portugal) fetch its accustomed price. The ingredients used for this purpose are a mixture of annatto and turmeric, in the proportion of five ounces of the latter to one pound of the former. These ingredients are boiled in butter for half an hour, stirring them frequently, and then straining through linen. The preparation can then be kept for use. When butter is to be colored, a portion of this mixture is melted over the fire: it is then poured into a hollow made in the mass of fresh churned butter, and by rapid stirring is intimately united with the butter immediately in contact with it, which being then spread over the whole mass, is, together with the requisite proportion of salt, carefully kneaded and worked through until no particle remains more highly colored than another; and when smaller portions have thus been colored from day to day, before a cask can be filled, the whole must, before packing, be kneaded once more, that no disparity of shade may disfigure it.

The greater portion of the butter made in the dairies of Holstein and Schleswig, is bought up by the Hamburg merchants, though it is likewise sent in considerable quantities from Keil and other parts to England and Copenhagen, and the West Indies.

We have already noticed the importance attached to every particular relating to the milk-cellar, and the utensils employed in making this celebrated butter. The different materials used for milk-pans were named, and we may now give some farther notices from the same authority on this head. Various kinds of utensils have been tried in Holland, in the hope of discovering how, in hot weather—more especially when a thunderstorm is gathering—the milk can be kept from too early an acidity. Those in most general use are shallow wooden vessels, nearly of an equal diameter at top and bottom, containing, when full, eight quarts—but in which, during summer, seldom more than six quarts are poured. The chief disadvantage of these vessels is the great labor and attention required to remove all acidity, which, in some states of the atmosphere, is almost unavoidable; and which, penetrating the pores of the wood, sometimes resists all the patient scrubbing, first with hot water and small birch-scrubbers, and secondly, with boiling water, and a hard round brush made of pig's bristles, with which every part of the utensil is carefully polished over. Sometimes the dairy-maid is compelled to resort to washing in a lye of wood-ashes or boiling, or even scorching over lighted chips, followed by countless rinsings in pure spring water. To diminish this labor the milk-venders in town paint the milking-pails and dishes with a preparation of cinnabar, linseed-oil and litharge; but this is expensive, for the vessels require three coats of the composition at first, and one yearly afterward—and, after all, the milk, for some days after these vessels are brought into use, has a perceptible taste of paint. Tinned copper milk-pans are very

costly, and require constant watching, lest they should require re-tinning. The zinc pans are yet but little known, and their value not sufficiently proved. Cast-iron lined with enamel are durable and very clean, but too expensive. Glass pans have many opponents on account of their brittleness. The testimony of Mr. Carr, however, is *decidedly in favor of this material*. He says that in his dairy (which is supplied by 180 cows,) the glass vessels have been used for four years. They are sixteen inches broad at the top, and twelve at the bottom: the glass is dark bottle-green, transparent and perfectly smooth, about one-eighth of an inch thick, and furnished with a round rim at the upper edge, which makes it easy to retain a safe hold of them even when full. They would contain eight quarts, but never receive more than six. "They cost eight-pence apiece, and their durability may be estimated by the fact that, to encourage carefulness, each dairy-maid is allowed one dollar extra as pan-money, being bound at the same time to pay ten-pence for each one she breaks; yet hitherto," says Mr. Carr, "no girl has broken to the extent of her dollar." The great advantage of these vessels is in the saving of time, fuel and labor they effect, for they merely require to be washed in lukewarm water, then rinsed in cold water, and put in a rack to dry. Supposing, therefore, (which Mr. Carr does not admit,) that the milk, during summer, becomes sour sooner, and consequently throws up less cream, in glass than in wood, this disadvantage would be more than counterbalanced by the diminished expenditure of glass vessels; for, of course, where time and labor are saved, the number of domestics may be lessened.

Cow-houses in Holstein are generally twice as long as broad, and calculated for four cows lengthwise, standing head to head, with passages between, floored with brick, and furnished with feeding and drinking troughs. One passage, if not both, is broad enough to admit a loaded hay-wagon, and is provided with large folding doors at each end, while there is also room behind the cattle sufficient to permit the manure being sledged out with a horse without incommoding them. The lofty roof affords accommodation for hay and straw, which helps to keep the house warm in winter; the doors are kept shut as much as possible during that season, sufficient light being admitted by small glazed windows. The quantity of food which can be afforded to cows during winter is ascertained as soon as the harvest returns are known. In plentiful seasons the calculation is that each cow should be allowed three sacks of grain, (generally oats, 140 pounds each sack,) 3,900 pounds of straw, including bedding, and 1,800 pounds of good hay; while for every hundred pounds of hay less, she receives twenty-five pounds of grain more, or *vice versa*.

There are three distinct breeds of cattle in the Duchies—the native cow, the marsh cow, and the Jutland cow. The first is middle-sized, with fine head and horns, and moderately thick neck; the color generally red or brown, though often yellow, black, or spotted. The District of Angeln produces the finest specimens of these cows, which are considered to yield more milk in proportion to the food they require than any other kind. The marsh cows are large-boned, generally red, and require luxuriant pasture. They thrive well in the marshy delta of the Elbe, giving from twenty-four to thirty-two, or even forty quarts, when in full-milk, daily; but the return of butter is much smaller, and of inferior quality to that of the Angeln cattle. The Jutland cow is fine in bone, rather lengthy than deep in body, but not generally long-legged. The usual colors are gray, dun, or black, or either of these spotted with white. They are distinguished for fattening easily, and are not much prized for dairy purposes.

The average quantity of milk obtained from good stock is estimated at from 2,000 to 3,000 quarts per annum, according to the food and care bestowed on the cows. The produce has been calculated thus: every 100 pounds of milk will give  $3\frac{1}{4}$  pounds of butter, 6 pounds of fresh cheese, 14 pounds of buttermilk, (exclusive of the water added before and after churning,) and 76 pounds of whey; and though the different circumstances affecting the cows cause a great variety in the results, still it is considered a fair average that fifteen quarts of milk are required for a pound of butter; for although from some cows a pound may be obtained from twelve quarts, yet others, and even the same cows at different seasons, and with different food, (such as beet, or raw potatoes,) will not produce a pound of butter from less than seventeen or eighteen quarts. On the whole, it is esteemed a fair return, in these Duchies, when the average produce of the dairy amounts to 100 pounds of butter, and 150 pounds of cheese, per cow.



The above particulars will, we doubt not, prove interesting to many of our readers who may be concerned in the business of the dairy, and may, in some cases, supply a few hints of practical utility; for there is much to admire and something to copy in the numerous precautions taken by the Holstein dairy farmer to insure an article of first-rate excellence as the product of his industry.

**NOTE.**—The recent liberation of glass from all duty, now affords manufacturers an opportunity of supplying our dairy-farms with milk-pans made of that beautiful material.

### MADDER.—PRODUCTIVE FARM.—PROFITABLE COW.

The following articles were cut from a Western paper—we suppose the *Prairie Farmer*—without preserving the title of the paper at the time.

Our soil and climate being perfectly well adapted for the growth of Madder, if farmers had as much influence as Congress, as even their *corn-fodder* entitles them to, the growth of it would be so encouraged as to give us a chance of making it, against the pauper labor of Europe.

**CULTURE OF MADDER.**—*Messrs. Editors:* In the time of the last War with England, when Madder could not be imported, it retailed for from 75 to 87½ cents per lb. My father seeing some directions in an almanac, planted the first year about half an acre, being all the sets he could obtain. The result of this crop I do not remember. The next year we put out one acre, lacking sixteen rods, which produced 2,300 lbs. of ground Madder, which was sold wholesale at \$65 per 100 pounds. It was raised on oak land, that had been cleared some forty or more years; clay soil—land prepared in the following manner: about seventy loads of manure, then planted in potatoes to ameliorate the ground, and the next spring plowed well and deep. Several crops were raised afterward, but not with so good success.

Now for the process. The land should be rich, well and deeply plowed, and thoroughly pulverized. The soil should be deep and contain considerable sand. Commence six feet from one side of your ground, and throw two furrows together. Now you are ready for putting in the sets, as follows; when the Madder roots rise to the height of eight or ten inches, draw them out from the old bed, from five to ten plants at a time, taking care to draw the part of the plant that is in the ground, which is yellow, and is commonly from two to four inches long; place them in baskets and carry them to the place of planting. Lay the plants on each side of the ridge thrown together by the plow, four or five inches apart, or six if scarce; then go two rounds, taking a light furrow. Then lay your sets as before, and so on, so as to have three rows of plants on each side of the center, which will make six rows of plants, and the bed when so completed should be about six feet wide. Now commence the second bed,

so as to leave four feet of space between the beds when finished.

Now nothing more is to be done except to keep it clear of weeds, and the intervals between the beds frequently stirred with the plow, till toward harvest, when the plants appear sufficient to cover the beds well. Then weed clean, stir the middles, lay the tops in, so as to form a straight edge to the beds. If thin places occur, from failure, turn some of the top so as to at least partially cover the ground. Now pat all the tops down lightly with the head of a rake. Take a shovel, and with the loose ground in the intervals cover the beds in small ridges crosswise of the bed, a shovelfull making eight or ten inches of the small ridge, and leaving from two to four inches between the small ridges: if entirely covered, the tops will smother. The covered tops will become crown roots, and soon will shoot up numerous young plants. Now if the second growth comes on so that it can be covered before the middle of August, proceed and cover as before, as this will much increase the crop. It is most convenient to cover one-half of the bed on each side of the interval. Keep the beds clear of weeds till fall. The second summer pull out all weeds and bunches of grass that would smother the plants, which is all the cultivation that is needed.

In the spring of the second season draw your plants for setting the second crop. In the fore part of September of the second season, you can commence digging your crop, cleaning out the old tops and yellow shoots. If plants are wanted for transportation, now is the time to save them; save the crown plants and cover them six or eight inches deep with earth. The small shoots before described will not answer to carry but a few miles. The roots can now be put in baskets

and washed, and they are ready for use by pounding them well in an iron kettle.

The process of washing, drying, and grinding, and packing on a large scale, that is to make a business of it, would require an additional chapter on the subject, which is not needed where it is only cultivated on a small scale: which information I am willing to communicate to any correspondent, or for publication if requested, to the best of my ability, though I am unaccustomed to writing for publication.

We raise principally for our own use, so that I could not supply crown roots for more than a few thousand sets.

Mr. Joseph Swift, residing on Vermilion River, about seven miles from Lake Erie, in the north-west corner of Lorain County, Ohio, is the most extensively engaged in the cultivation of Madder of any man I know of in the Western States. M. MOYER.

Niconza, Miami County, Feb. 1847.

**A PRODUCTIVE FARM.**—*Messrs. Editors:* Mr. Mordecai Abraham is a neighbor of mine, living upon rented land, and pays \$1 50 per acre for ninety-six acres. He has just given me the following items as the amount of his crop for the year 1846. His farm has been worked exclusively by himself and son, with a team of two horses.

	Bushels.
28 acres Winter Wheat .....	858
9 acres Spring Wheat .....	164
39 acres Corn .....	2,050
5 acres Oats .....	300
$\frac{1}{4}$ acre Potatoes .....	50
A patch of Onions .....	7
Total .....	3,429

In addition to the above, Mr. A. had  $1\frac{1}{2}$  acres of flax, which was a good crop, but not saved for want of time; and three to four acres of spring wheat which he was unable to harvest. He also had nine acres of good timothy hay, which was well saved; and one hundred and sixty bushels of apples, one-half of which were sold for fifty cents per bushel.

The wife and daughters made a piece of silk—enough for eleven handkerchiefs, which sold for \$1 50 each, and they have kept a hand-loom in motion for most of the season.

For harvesting and threshing, Mr. A. paid 161 bushels of wheat, which, with the \$144 rent, shows the amount to be deducted from the above, in estimating the value of the labor of the family.

I send you this for the purpose of showing your readers abroad what *two men and two horses* can do in the way of furnishing something to eat, when they set themselves to work upon our prairies. The land upon which the above crop was raised is not above a medium quality of the lands in this region; and I verily believe there are 30,000 sections or square miles in the State which are as productive as the farm in question. If I am right in this opinion, there are then 120,000 quar-

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ter sections which might be made as productive as the one upon which Mr. Abraham raised the above crop. Again, we have some 20,000 square miles not so fertile, which may be set down at half the productiveness of those first named—equal to 40,000 more quarter sections—making in all 160,000 farms of equal productiveness with the above. Now if you will take the trouble to *cypher up* how many people could live comfortably upon the provisions raised by Mr. A. as before stated, and then multiply that number of people by 160,000, you can, I think, give a pretty shrewd guess how many human beings can be fed upon the productions of Illinois when the same shall be brought into tolerable cultivation. E. HARKNESS.

Fruit Farm, Peoria County, Feb., 1847.

**MR. PHELPS'S DURHAM COW VICTORIA.**—*Messrs. Editors:* In redemption of the pledge made you when last in your city, and in obedience to the wishes of our mutual friends, who have solicited it for your columns, I send a brief notice of my Durham cow Victoria.

She was calved on the 30th day of March, 1841, and slaughtered on the 6th day of January, 1847, being 5 years, 10 months, and 7 days old—has had four calves at three premature births, none of which have been reared.

Her standard hight was ..	4 feet 8 inches.
Length from horns to tail ..	7 .. 4 ..
Breadth across the hips ..	2 .. $1\frac{1}{2}$ ..
Size in the girth ..	7 .. 9 ..
Weight on foot ..	1890 lbs.
Net weight of quarters ..	1312 lbs.
.. .. hide ..	98 ..
.. .. rough tallow ..	176 .. —1586

Loss in slaughtering, 304 lbs.

She would probably have weighed 2,000 lbs. had she been kept until maturity.

Journalizing the weight of animals having become somewhat fashionable, I will add that I marketed with Messrs. A. D. & H. Reed of Farmington, the present season, fifteen hogs, averaging 416 lbs., the lightest weighing 332 and the heaviest 524 lbs.

WILLIAM J. PHELPS.

Elmwood, Peoria County, Feb., 1847.

☞ A baker of Berne, in Switzerland, has succeeded in making very palatable bread from Iceland Moss. It results from a scientific examination of this bread that out of 102 parts, it contains  $44\frac{1}{2}$  of fecula or nutritive matter. Bread made chiefly of potatoes is said to contain only 15 in the 100 parts of nutritive matter. [Galignani.]

☞ In Germany the Government of one of the southern States, has ordered that athletic schools, to promote the full development of the human frame, should be considered as belonging to the ordinary category of youths' training.



## TO FARMERS' CLUBS.

## A WORD FROM THE EDITOR OF THE FARMERS' LIBRARY.

WE respectfully recommend that with your monthly meetings for oral discussions you connect the establishment of *small libraries* of choice books, of which, if requested, we shall be happy to furnish a catalogue according to our best judgment. Of course we should recommend subscription to all the agricultural journals, as they would amount to almost nothing. But as most of them treat almost altogether only of practical Agriculture, we would suggest works that are not embraced in them, and that treat of the Natural History and Physiology of trees, plants, birds, animals, fishes—in short, of the various forms of animal and vegetable life with which the farmer is in contact or surrounded, and of which it is almost disgraceful for country gentlemen to be entirely ignorant. Now as we know the inertness which belongs to people of certain habits of life, and how much they require, not only to have the food provided for them, but almost to be fed, we will annex a rough draft of RULES for the government of such a Book Society. What a fine example it would be for fathers to set to their sons! Take these Rules, for instance; they may be modified at pleasure:

## FARMERS' BOOK SOCIETY, WILMINGTON.

## RULES.

I. Doctor J. W. THOMSON to be Chairman; —, Treasurer; —, Secretary; —, Librarian.

II. The annual subscription of each member shall be \$1, together with an admission fee of 50 cents, the first subscription to be paid immediately on the commencement of the Society, and that of each succeeding year, together with all fines, at the annual meeting in —; and if the same be not paid before the monthly meeting in —, the defaulting member shall be considered as having withdrawn from the Society, and shall forfeit all farther right and interest in the books.

III. The members shall meet at —, on the first — in every month, (excepting the month of —, when the annual meeting will be held,) at the hour of seven in the evening; and business shall be commenced at a quarter past 7, by whoever members there are present.

IV. Each member shall be entitled to propose a book; but no book shall be purchased unless it be approved of by two-thirds of the members present. No member to propose a book of a price exceeding his annual subscription; but two or more members may join in proposing a book of a price equal to the amount of their united subscriptions. The proposer or proposers of a book shall be entitled to the first perusal of the same, and as soon as returned it shall be circulated in an order settled by lot. If any member neglects to name a book within three months from the annual day of meeting, his right of naming one shall merge into that of the members at large.

V. No member shall be allowed more than one volume at a time during the first year; and

all books shall be returned to the Librarian on or before 7 o'clock in the evening of each monthly meeting; and any member keeping a book over the time shall pay a fine of sixpence per day for every day the book shall be so kept. And if the book shall be lost, torn, or materially injured, the member shall make good the same.

VI. Any member may be allowed to transfer a book to another member at any time between the monthly meetings, and the member to whom such book may have been transferred shall alone be responsible for the due return of the same in proper condition, and shall be liable to all fines which may accrue should the book be kept beyond the prescribed time—but no book may on any account be lent to a non-subscriber.

VII. An annual meeting shall be held in —, when the members present shall vote such of their books as they may see fit into their standing library, and the remainder shall be sold for the benefit of the Society; and on this day the business shall commence with reading the rules of the Society; and on this day the business shall commence with reading the Rules of the Society, so that any alterations deemed necessary may be made therein; but no alterations may be made at any other meeting.

VIII. Any person wishing to become a member must be nominated by a member at one monthly meeting, and be balloted for at the next. The approbation of two-thirds to constitute an election. Each new member to pay the admission fee of 50 cents besides the annual subscription.

IX. A book shall be kept by the Secretary with the accounts of the Society, which shall be open to the inspection of the members at their meetings.

Let the above, with such modifications as may be thought best, be printed and posted, or written in a small book that will cost 25 cents or less. When a dozen have signed, let them have a meeting and organize at once. Above all, don't talk and talk about it, and say it would be a good thing—but *do it!* What would be the state of society and the world, were they made up of only that numerous class of men who ever have a *great mind to do so and so?*

## INCORPORATIONS—MANUFACTORIES.

## INCORPORATIONS OF CAPITALISTS—ESTABLISHMENT OF MANUFACTORIES: HOW AND WHEN BENEFICIAL TO AGRICULTURE.

SEEING in the *Marlboro' Gazette* that T. F. BOWIE, Esq., and others propose to establish, at the county town of that opulent county, Prince George's, a *Tobacco Manufactory*, leads us to remark that every man of candor will admit the benefits which must accrue to surrounding agricultural districts, from the establishment in their midst of prosperous factories when these are the spontaneous growth of suitable power and materials for carrying them on, and of a compensating demand for their fabrics.

Where congenial circumstances thus combine to attract capital and consumers to the doors of a farming community, how short-sighted, not to say stupid, is the legislative policy which throws clogs and difficulties in the way, such as the expense, delay, log-rolling and party calculations and maneuvering, and sometimes worse than all these, which attend an application to the Legislature for a special act of incorporation in every case; and the imposition of unreasonable and frightful responsibilities on capitalists who would risk a given amount of their means, in manufactories that would consume the produce of the soil, and in banks that would accommodate the farmer. Yet such has been, and still is, the short-sighted policy pursued in many of our States. Instead of holding out encouragement to capitalists who might be willing to associate for the purpose of loaning means to struggling and industrious farmers, and for giving activity to the natural advantages for manufacturing which may be found to exist in particular localities, the barbarous policy has been to prevent all such associations, by making those who form them individually liable, to the extent of their whole estate, for the debts of the company, so that in reward for their willingness to risk a part of their fortune to build up a new business, they are admonished by wise law-makers that if they dare do it, it will be at the peril of all the property they have in the world. Could any device be better calculated to banish capital beyond the sphere of such legislation, and along with it the skill that often only needs capital to put in operation the most useful establishments? How much wiser to pass some general law, as in Massachusetts and Rhode Island, under which it should be easy to form an association, either for banking or manufacturing purposes, leaving each member bound for the debts of the corporation only in proportion to his share of its capital and the corporation answerable only for the known and advertised amount of its stock—taking care that the state of its affairs be periodically and publicly exhibited. Exception might be made to the limited responsibility of the members in favor of debts due to operatives for work and labor performed, as it would be easy for the Directors to see that they were paid—daily, if need be.

Instead of thus opening widely the doors of each State, and each county in every State, for the attraction of capital and enterprise, and thus *destroying the "monopoly"* of the rich by distributing the capital among a great number of competing money and manufacturing institutions, it is too much the fashion to denounce all such associations, and to make laws for their incorporation difficult



to be had, complex in their provisions, and so hazardous to those who might accept them, that large capitals are left in the hands of the great shavers, and he who would invest his small earnings as in a savings-bank in his own neighborhood, under his own eyes, has no such resource; while the moneyless man of knowledge and enterprise is driven into other States, where men and legislators have too much sagacity to bar the door against the access of capital and the skill and labor which are sure to follow the demand for them which capital creates.

But for clearer and more enlarged views of this part of the subject, we recommend the reader to turn back to pages 494-5 of our May number, to the luminous disquisition of a correspondent eminently conversant with such topics. Speaking there of the wise policy of Massachusetts and Rhode Island, and its effects on the agricultural interest and the general welfare of society throughout those States, he says: "The consequence is that there are *distributed throughout* those two States nearly two hundred money-shops, constantly engaged in the collection and distribution of capital owned by the people of the neighborhood, who themselves manage their own property, and are not compelled to transmit it to Boston, to be managed by others of whom they know but little. The general result is, that the trade in money is attended by little loss to those who deal with banks, and more uniform, steady and moderate profit to those who own them, than in *any other part of the world*. Throughout both States, every man is within the reach of a money-shop, and the industrious and prudent farmer, shop-keeper or mechanic, can at any time command small loans to aid him in his business. In no part of the world does capital distribute itself so equally—falling almost like the dew, and fertilizing where it falls; in none is there a currency so unexpensive, and in none is the quantity of currency so little liable to fluctuation."

Farmers and planters in\* Maryland and Virginia! will you not ponder these facts, and elect for your law-makers men who are capable of appreciating and acting upon them, instead of men too many of whom are mere drones without knowledge and without ambition or industry to seek for it—men intent only on setting party traps for their political opponents, until the time comes to fob their per diem, and go back to that life of inactivity from which they should never have emerged? How enviably different is the prosperous condition of the masses in Massachusetts and Rhode Island as here described, from that of States where usury laws prevail, and where every attempt to incorporate capital and industry for the more efficient use and exercise of both, is held up and denounced as an attempt to establish a despicable monopoly! Suppose an industrious young farmer, in any of these States, in coming to an exhausted farm, desires to buy and lay on a thousand bushels of lime, or to purchase economical, labor-saving and abundant implements and machinery, for which expenditure is true economy, he must either forego them and drag on, as with a broken back, the best years of his life, or he must first hunt up his "town endorser" and go begging to one of those mammoth banks with agricultural titles, which are concentrated in the great commercial emporiums, where the utmost accommodation to be had is the discount of a "sixty-day note," perhaps a few times renewable.

Then as to the "*profits of farming*" in that State where "the industrious and prudent farmer can command small loans to aid him in his business," look at the testimony given in at a meeting of the farmers of Massachusetts in the last number of this Journal. It elsewhere appears, too, in an authentic shape, that the

increase, per cent., of the wealth of Massachusetts from 1820 to 1840 was in no county less than 47·23, and the average increase in the whole State during that period 95·31 per cent., while the increase per cent. of population in the same period was 40·97. Our purpose, however, was not to enter on the barren task of gleaning after our enlightened correspondent C., who has left nothing to be gathered in this path; it was merely to suggest in view of this proposal to establish a tobacco manufactory at Upper Marlboro'. How much more advantageous for a State at large, to have capital *distributed*, where circumstances admit of it, and how much wiser to adopt a policy that will encourage such distribution over a wide surface and through every county, than to have the same amount of money capital and labor concentrated in large institutions and in but few places! Hence the satisfaction we always experience at learning that a number of factories, on a moderate scale, are springing up in different neighborhoods, which promise fair remuneration to the capital embarked in them. This, at a first and superficial view, may appear to conflict with the suggestion of a single central inspection for tobacco; but it does not in the least. The factory is a place where the people of the country exchange among themselves labor, provisions and money for the fabrics of the factory. The object of inspection is to enable the people—the consumers of Europe, and the people of the United States, the producers—to understand each other as to the value of the commodities to be exchanged with each other. That value must be fixed at the place in which they congregate—which is Baltimore—and no local decision as to quality and value will be of any avail. It will add to the costs and at last be abandoned again, as it has been before. Local inspections answered the purpose fifty years ago, before capital and purchasers were congregated in a large town—a congregation which time and necessity will always bring about, with its necessary consequences and public conveniences. The highlands and mountain ranges of Maryland, Virginia, the Carolinas, and Georgia, ought to abound in factories—so that the expense of transporting bulky articles, which now precludes their production, should be overcome by *condensing* them in form and value, by the power of machinery; nor do we doubt that the thousands of localities that now invite the use of skill and capital in these States would be occupied and speedily come into full play, creating life and activity where silence reigns profound, under more enlightened domestic legislation, and in the absence of that groveling and detestable *party* spirit in some of them, which, while it ever professes exclusive love for the people, contaminates and fly-blows every measure projected by enlightened patriotism for the solid and lasting good of the country.

And here, again, we hear the croaking voice of the wiseacre, who plumes himself on being, *par excellence*, “a practical man,” putting in his caveat: “What,” says he, “have Agricultural Journals and agricultural people to do with the laws and policy of the States? with incorporations to encourage industry, and to regulate the use of capital! Tell us only how to plant corn, and fatten hogs, and shear sheep.” Ay, truly! and it is just this indifference to the laws of the land, as they relate to the landed interest, and to education, which has brought about that state of things under which the farmers of many States are themselves, by the classes that live on them, sheared more closely than their own sheep.

And where, then, says the reader—since you *will* have us *undergo the labor of thinking for ourselves*—where are we to find a cure for the enactment of laws and the establishment of a public policy so inimical to the rights and the prosperity of the plow? How are we to eradicate from our public councils that vul-



gar party spirit which, when analyzed, resolves itself into love of the flesh-pots—that Bohon Upas, which first appearing in the North, is spreading over the whole country, withering everything fair and fruitful within the reach of its baleful shadow? And to this we answer at once, that it is idle to dream of any substantial and progressive reform in the action of Governments, as that action bears upon and influences the landed interest, or even to expect any great and honorable (because intellectual) improvement in the field of practical husbandry, but by *enlightening the minds of the sons of farmers as they grow up*, in all that concerns not only the art of tillage but their political rights in relation to themselves and to other classes. Farmers! it is thus only that you can achieve a reform that shall reach the main springs of public prosperity. When thus you shall have raised the standard of general intelligence *among yourselves*, the intellectual and moral grade of your legislators will rise in proportion, until their sole ambition will be to vindicate and elevate the agricultural industry of the country, securing for it the benefit of all those reforms which Knowledge and Science never fail to achieve when applied to the melioration of every human pursuit. Above all things, learn to despise and scorn the fool or flatterer who would persuade you that *your* pursuit is either above or below the reach of being benefited by the lights of science—by thinking, by inquiry, by observation and comparison. With equal plausibility might the owner of an iron-mine bank be told that art can do nothing with the ore which it brings thence to be fashioned into your saw or your spade, your knife or your razor. Yet what has not inventive Science done to fashion things of so much usefulness and elegance out of such rude materials? For remember that without Science the mere physical strength of all the men in Maryland could not produce them, nor, but for machinery, could they be produced for their present cost a hundred times told.

But to come back more immediately to our subject: duty prompts us to add that great merit is to be accorded to those who take the lead in bringing manufactories into new and appropriate localities, creating on the spot a fair remunerating demand for the products of neighboring fields, gardens, dairies, &c. Such diffusion of capital and enterprise has, as before intimated, a tendency to break up the great monopolies enjoyed now by those only who reside in the immediate vicinity of large towns, where, under the centripetal influences adverted to, capital and consumers have a sort of legalized tendency to aggregate. It will, however, be observed that we have not ventured an opinion on the capabilities and fitness of Marlboro' for the particular manufactory in question, in reference either to the stockholders or the planters of the county. That must depend on various considerations, of which those concerned are far better qualified to judge than we pretend to be. The free and enlightened policy of the State of New-Jersey, in promoting the habit of association, and her exemption from taxes, are all drawing off or withholding wealth and population, rapidly and to a very large amount, from New-York and Pennsylvania.

This much we will venture to say in conclusion, that if the people of Massachusetts and Rhode Island could be lifted up, *en masse*, and set down in Maryland and Virginia, carrying with them their more liberal and sagacious policy in regard to the use and exercise of their money and enterprise, banks and manufactories would be seen to spring up in every county, and the whole of these old States, so long stationary or declining, though radically so much more fertile and more easily labored than those, would, before many years, possess four times as many people, and four times as much wealth as they do now.

In looking at the profits of farming in Massachusetts, be it remembered that those men have to deal with a rugged, hard, gravelly and stony soil, requiring for the plowman iron muscles for the slow and steady motion of the plow drawn by a span of oxen that seem to laugh as they walk away with 4,000 pounds in a loaded cart.

What we most desire is to see farmers come together as such, without respect to party, to consult about and to investigate their condition, and to see how it is that while the whole proceeds of the public lands, given by the old States for the common use and benefit of all the States of the American Union, are pledged for the payment of the interest on a war debt, and while the landed interest pays so many millions every year to the support of armies and navies, and army and navy schools, not *one dollar*—no, not one dollar—is given for instruction in *Agriculture or any industrial pursuit*! If money can be found to build and equip observatories and naval and military schools; if \$80,000 can be found to print one Patent-Office Report, can nothing be had to found Agricultural Schools? But men who would have justice done themselves must show that they know *how to keep the account*!

J. S. S.

## CISTERN:

### HOW BUILT—THEIR COST, AND APPLICABILITY TO THE WANTS OF THE COUNTRY.

WE the more earnestly desire to procure and disseminate all practical information on this subject, because we see so many people neglecting the means at hand everywhere for collecting an ample supply of pure water for all uses, which they might do from the roofs of their houses, by means of a simple cistern easily built after the fashion described in the following obliging communication from Mr. Buck. How many families in the country are scantily supplied with water for domestic uses, and that procured with great expense of labor. Moreover, no tongue can tell how much the domestic animals sometimes suffer for want of this first necessary of life!

J. S. SKINNER, Esq.

HARTFORD, Ct., April 1, 1847.

*Dear Sir:* Your favor asking information respecting the cistern you saw building at my place last summer, was duly received.

Failing to obtain from the builder that definite information I could wish, I will tell you all I know about this kind of cistern. Like everything else of Yankee invention, it is "patented;" the entry at the Patent-Office is, I understand, made by Obadiah Parker, of Syracuse, N. Y.

The cistern is built of cement, without brick or stone, say one-third cement, two-thirds coarse gravel mixed together like common mortar—the hole in the ground being dug large enough to admit of a wooden frame, made in pieces of two feet high by three feet long, the pieces being fastened to each other by hooks and staples; the frame is set off from the sides, say  $2\frac{1}{2}$  to 3 inches, according to the nature of the soil, commencing with one row of pieces; the composition (cement and gravel) is then turned in slowly, another set of pieces then hooken on, adding composition as before. As the composition hardens, the frames are removed, and it is finished inside with a trowel like the wall of a house. The top is arched, leaving a hole at top, say 24 inches square, to admit a person for the purpose of clearing it when necessary. The bottom is flat, and is made after the sides and top are finished.

For pipes for carrying the water in, and waste pipe, use a round stick, say 3 to 5 inches circumference, and form the composition around the stick, withdrawing the stick as the pipe is formed.

The cover to the hole on top of the cistern is generally of wood, in which you insert either wooden pump or lead pipe, though a lead pipe can be easily inserted

into any part of the cistern by boring a hole through the cement after it is thoroughly hardened.

The cost here is, for one of 40 bbls ....\$25	The cost here is, for one of 75 bbls ....\$40
.. .. 50 .. .. 35	.. .. 100 .. .. 50

This includes digging and materials.

The one you saw here was, say, 7 feet in depth, 6 feet diameter, and will hold 75 bbls.; it answers, in every respect, the purpose for which it is intended. It is covered with, say, 3 feet of dirt to protect it from frost, and loads of hay weighing a ton have passed over it this winter without causing it any injury. For dwelling-houses in the country about here, they have completely driven out of use the old-fashioned wooden cisterns. For convenience and additional protection against frost, they are generally built under the kitchen.

At the South, where they are not troubled with frost, there cannot be an objection to them. The person who built mine said he thought of going to Louisiana for that purpose next winter.

If in my power to obtain any farther information of this or any other matter in this neighborhood, please command the services of

Yours, truly, DANIEL BUCK, Jun.

### CULTIVATION OF FLAX.

Sir: From the interest you take at all times in matters relating to Agriculture, I am induced to lay before you the result of an experiment in the cultivation of Flax on my father's farm, (the produce of which has just been sold by Mr. Schwann, agent for the sale of flax, Leeds,) with the hope that it may, in some degree, remove existing prejudices against the cultivation of this invaluable plant, as it not only supplies the farmer with an excellent ingredient for the purposes of feeding cattle, but also affords good and profitable employment to the rural population, which, it must be admitted by all, is much wanted at this season of the year.

It is by many considered an exhausting and unprofitable crop; the former is a mere idle notion; experience will teach that it *meliorates* rather than *exhausts* the soil (and it may not be out of place here to mention that this season, after a crop of flax, 1A. 0R. 1P. planted mangel-wurzel, produced, clean and free from tops, 43 tons 15 cwt.) With regard to the latter, I shall refer you to the following statement:

(GROWTH OF 1845 ON 4A. 1R. 24P.)			EXPENSES.		
	£	s. d.		£	s. d.
1,349 lbs. flax sold in Leeds for (after deducting all expenses).....	25	10 6	Plowing 4A. 1R. 24P. at 10s.....	2	4 0
106 lbs. of do. sold in Ensham.....	2	13 0	10½ bushels linseed, at 7s. 6d.....	3	18 9
372 lbs. of tow, do.....	4	13 0	Sowing and harrowing do.....	0	10 0
104 bushels of linseed, at 7s. 6d.....	39	0 0	Weeding.....	4	2 0
Small quantity of tail linseed, chaff and refuse from scutching.....	1	10 0	Pulling and tying up the stalks, threshing, spreading, turning and preparing for scutching, 30s. per acre.....	6	12 0
Value of crop.....	73	6 6	Expenses of carting, stacking in barn, &c. ....	1	15 0
Deduct expenses.....	40	15 3	Rent and taxes, 50s. per acre.....	11	0 0
			Scutching 1,455 lbs. of flax, at 2d. per lb.....	12	2 6
			Do. 372 lbs. tow, at 1d. per lb.....	1	11 0
Net profit.....	£32	11 3	Total expenses.....	40	15 3


It will be seen from the above statement that the cost of preparing the fibre for market is very great in comparison to its value, and I was induced from this serious item in the expenses to write to Mr. Warnes, of Trimmingham, Norfolk, (to whom I am indebted for much useful information on the subject;) in answer to which he says, "The cost of dressing your flax is excessive, the quantity of tow and consequent waste immense." I think, therefore, under these circumstances, and with the above result, the cultivation of flax is deserving of some consideration.

My only object in troubling you with this subject is the improvement of Agriculture.

Ensham, Jan. 27, 1847.

I remain, Sir, yours very respectfully,

SAMUEL DRUCE, Jun.  
[Oxford (Eng.) Journal.]

 A drop or two of honey well rubbed on the hands while wet, after washing with soap, prevents chapping, and removes the roughness of the skin; it is particularly pleasant for children's hands and faces in cold weather.



# AGRICULTURE IN SCOTLAND.

THOSE who believe that there is nothing to be learned out of our own country, because England is, for the most part, enveloped in fog, and because there the cattle feed on turnips, and in Scotland the men eat oatmeal stir-about, need not read the following ; but those may who believe it useful to know what is deemed and uniformly obtained as "a good average crop" to the acre, in, perhaps, the best cultivated region in the world. The words in Italics were not so in the London Monthly Magazine (for April) from which we take this communication. Those lines were underscored by us to show their correspondence with what we have been insisting on, and in which we have again and again implored the aid of the general press of our country.

For our part, we are tired of reading accounts of big crops and fat hogs and bullocks, from year to year, but neither bigger nor fatter than we have had them for thirty years. Let all unite in procuring for those who are to be agriculturists an *education* which shall reveal to them the *principles*, the knowledge of which will substitute in their pursuit uniform success for accidental results. In the practice of Agriculture, as in the practice of medicine, let us aim to have our sons become physicians instead of being quacks. In sickness both may be attentive—both may be kind ; but which would we soonest call in, in case of serious illness ? Ignorant men often think themselves the wisest, and those who are too lazy to seek knowledge would dissuade others, as the fox who lost his tail in the trap would persuade his companions that nothing was so convenient and comely as a *short tail*.

If agricultural education through the country were as thorough as military education is at West Point—and half the expenditure for our army in time of peace would make it so—Maryland and Virginia might be made, like the Lothians in Scotland, to average 40 bushels of wheat, 56 of barley and 80 of oats, to the acre. Why should they not ?

To the Editor of the Western Times :

Sir : A few weeks since I troubled you with an account of the method adopted in the southern counties of Scotland, of paying farm-laborers, &c. ; therefore have again taken the liberty of trespassing on your valuable columns, by giving your agricultural readers some idea of the manner in which farming operations are conducted in the Lothians of Scotland or Counties of Haddington, Edinburgh and Linlithgow. I shall not enter minutely into details ; those who wish to be more fully acquainted with Scotch farming should visit the country ; and whether they do so on a tour of profit or amusement, they will be most amply repaid.

The Lothian farms consist each of from 200 to 500 Scotch acres, the Scotch acre being one-fourth larger than the English statute acre, therefore I shall limit my remarks to the current acre of the Lothians. A farm of 300 to 500 acres is by common consent the utmost which one farmer is thought capable

of managing. The farm-buildings are small, compact, and situated near the center of the farm, and have always a steam-engine of six or eight horse power for threshing and other purposes. At the entrance of the farm-yard is the dwelling of the grieve, or bailiff—for every farmer keeps a bailiff, who superintends everything on the farm, and is cognizant of everything that goes in or out of the farm-buildings. I found the grieves universally clever, acute and sensible, and their minds open to what was passing in the world beyond the limits of their own immediate neighborhood ; this speaks well of *what education has done for the peasantry of this part of Scotland*. The farmers themselves are men of much superior education, manners and style of living to the possibly equally wealthy ones of the farming counties of England ; they are all of most hospitable habits. Few of them are without a handsome phaeton for the use of the female members of their family. One feature throughout

the Lothian farms may be remarked—a great uniformity in the quality of the crops. Not, as elsewhere, here a good farmer and there a bad one, here a failing crop and there a middling one, and here again a finer one—but nearly all the same—showing that farming is there reduced to a science, leaving nothing uncertain but the Seasons. The farms are divided into fields of from 20 to 50 acres each, the hedges are clipped low and thin, and the ditches covered in, so as to occupy as little space as possible. There are no trees in the hedge-rows, and few furrows in the land; and thus, between one thing and another, the entire area of the farm is made productive, and the expense of fences and gates is reduced to a minimum. Another thing worth noting is, that permanent grass, either as meadow or pasture, is unknown, or nearly so; the only hay or pasture is derived from artificial grass sown in the regular rotation of crops. The rent of the Lothian farms is from £3 10s. to £7 per acre, [\$17 50 to \$35!] and these high rents the farmers not only pay but thrive upon. They are enabled to pay these rents and thrive, partly by the heavy crops arising from skillful cultivation, and partly by economy of management in every department. Actual wages, however, are as high as in England, viz: 10s. to 11s. [\$2 20 to \$2 42] a week for a common laborer, 12s. for a plowman, and 9d. a day for women—ten hours to the day. As to the great amount of produce, it must be remembered that all the land is under the plow. Five quarters of wheat [40], ten of oats [80], seven of barley [56], and from thirty to thirty-five tons of turnips, are reckoned a good average to the acre.

Economy of management is shown in the division of employment confining the attention of the farmer to as few points as possible, in a due rotation of crops, so as to have no land lying idle or unproductive, and in the use of machines and horses instead of manual labor, whenever circumstances admit of it.

All the Lothian farms are held on 19 years' leases, and the rents wholly or partly corn-rents, rising and falling with the yearly fluctuations of the price of corn. Without a long lease the farmers would not lay out their capital in the free manner they now do, and with a long lease they feel independent of their landlords, more as if they were the actual proprietors. In consequence of this independence and part ownership, as it were, of their farms, men of much superior rank, education and capital engage in the business of farming than is the case in England, or, indeed, than ever will be the case in England under existing circumstances.

The foundation of all improvements in the Scotch farming is the system of thorough draining; and so essential is this considered that most of the land is deemed unworthy of being farmed at all until it has undergone this operation. The drains are made at reg-

ular distances, from 15 to 30 feet or more apart, according to the nature of the soil, and from 24 to 30 inches deep. The general course of cropping in the Lothians is: wheat after summer fallow; turnip, barley, seeds down for one, two or three years, as circumstances vary; oats. When the land is very stiff a crop of beans and peas is taken.

I have thus endeavored to give, in a somewhat unconnected way, the results of my observations on the Lothian farming, where high rents, high profits, and a well paid and contented peasantry are all seen combined in a pleasing union. It is an interesting question, but one I am not going to enter upon, how this improved system of cultivation can be introduced into England? I am inclined to think the superior and more practical education of the Scotch has been at the bottom of the improved state of things. Education has given the knowledge which has enabled them to apply their capital with success, and to extract from the land-owner the long lease, which enables them to invest their capital with safety as well as success. Trusting these few remarks will be found worthy a place in your paper,

Believe me, truly yours,  
Broadclist, Feb. 17, 1847. R. S. HEWS.

**POTASH WASH FOR FRUIT TREES.**—It being about time to attend to that work, I shall describe my method of using the potash. I usually dissolve ten pounds in two pails of hot water, and for young trees I put a quart of that to a pail of cold water, and when well mixed apply it to the trunks and limbs of the trees, either with a whitewash brush or a broom, and for old trees I put two quarts to a pail of cold water, and put it on as far as I can reach. If any moss or other vegetable substance adheres to the limbs, I take a ladder, by which means I can reach and wash the branches wherever the moss is; or if any lice or scales get on my trees, I wash to the extreme ends of the branches, for no tree can be healthy if it have lice. If the tree is well washed it will remove moss, lice, scales, and all of the thick bark that often adheres to large trees, which are a harbor or a hiding-place for insects to deposit their eggs, and for the borer to escape from birds.

I wash all kinds of trees, and think myself well paid for it. Last year I did so, and was not troubled with the fruit falling off, nor having it ruined by worms. My neighbors, Emerson and Thayer, washed their trees, and were equally successful. I usually do it in February and March, but it may be done in December and January if the weather is warm, or in April, if it is not convenient to do it before. The potash that runs down the trunk is not lost; it nourishes the tree, and keeps off borers. I deem it almost indispensable to the raising of good fruit to wash the trees well. [New-England Farmer.]

**NETTING FOR SHEEP-FOLDS.**—Messrs. Wildey & Co., of Holland-street, Blackfriar's Road, obtained a prize for this "netting," made of the bark of cocoanut, at the Royal Agricultural Society's meeting, at Bristol, in 1842. It is also strongly recommended in the Society's Report of that year. It will wear out several sets of tarred hemp netting, and is so light that a herdsman can with ease carry 200 yards of it.

## THE VALUE OF TIME.

Steamboat Mary Washington, RAPPAHANNOCK, June 13, 1847.

*Mr. Editor:* The size and scope of your journal enable you to spread before your readers a variety of matter over and above the description of new implements and processes employed in practical Agriculture, and the results of such experiments as accident may hit upon, or science suggest. You have well judged, Sir, that the mind, like the palate, calls for some variety, and having myself been often gratified by the perusal in THE FARMERS' LIBRARY of things not strictly practical, will, with your permission, endeavor to contribute occasionally to that diversity in which I have myself found such agreeable amusement. As a longer preface would ill comport with the reflections which prompted what I am about now to say, let me at once declare that in my judgment there are few topics on which men who live in the country, and more especially those who most complain of "hard times," stand more in need of some words of exhortation and reproof than on their insensibility to THE PRECIOUS VALUE OF TIME. When, Mr. Editor, you come to reflect on the shortness of the average period of human life, and how every man of proper feeling must desire not merely to maintain his own independence, but to provide for his family that blessing without which there can be no security for virtue itself; and then when you consider how large a portion of existence, even in a condition of ease and health, must necessarily be consumed in repairing the natural wear and tear of the constitution, is it not amazing to think how many hours and days, amounting in the aggregate to years, are thrown away, more especially, perhaps it may be said, in the country than in cities, not merely in listlessness, but in hanging about country taverns and stores, and in the low and vulgar squabbles and intrigues that consume the time of *party politicians*? Reflecting on this subject, it occurred to me, strange as it may appear, that there is no example to which these gentlemen of the country ever pressed with difficulties, may be referred, with more hope of good effect, than to the invariable, untiring habits of systematic application to business which characterize men of the *largest fortunes in our largest cities*, where time is measured by the second, as gold is weighed by the grain. How different with many, even among those who are esteemed the most industrious farmers. With them, when meeting on the road, so inveterate is the custom of halting to while away precious time in common-place inquiries and remarks, that even their horses, partaking, as if by mesmeric influence the social temper and indolent habits of their riders, mutually slacken their pace as they approach each other, and seem, like them, to exchange their social salutations. After half an hour passed in stereotype inquiries about the health of family and neighbors, and remarks about the weather, the prevalence of the drouth, the ravages of the fly, the bloody details and glories of the war, &c., they at last separate, and proceeding each perhaps a mile farther on his way, they both meet another neighbor, and after the usual inquiries the leg is thrown over the pommel of the saddle, and, discussing the "hardness of the times," another half hour is swallowed up in the great abyss of more precious time forever and irretrievably lost. Hence it was, as I remember, Mr. Editor, that my lamented father, in sending me, when a boy, on a journey of business, used to tell me, at parting, to remember, that in nothing could *industry* be practiced with more effect than in *traveling*. In this consists the moral of Esop's fable of the *Hare and the Tortoise*. But go from the country to the large town, (not the country village,) where country people are apt to think most men live in ease and idleness, and you will find every man on the run, and the wealthiest generally the most impatient of the loss of a moment; so much do they dread it that in the streets they neither look to the right nor the left, for fear of deadening their way by even a nod of recognition to their most intimate friend from the country. A case which fell under my own observation, and to which I was in fact a party, may serve to show to your readers in the country what sort of men are these



town *millionaires*, with whom we are apt to associate no ideas but of the most luxurious indulgence and the most ostentatious displays of superfluous wealth.

Having occasion, some weeks since, to remit nearly \$30,000 to Paris, and being without experience as to the minutiae of the mercantile process, I put myself under the direction of a friend to guide me through what I considered quite an important operation. Accordingly, under his instruction, I got from the bank clerk a pencil memorandum of the amount to be remitted, on a paper as large as your thumb-nail. Thus provided, we proceeded a few doors below, in Wall-street, to the office of the celebrated house of P. W. & Co., where, instead of finding a starched dignitary in his silk gown and worked slippers, reposing in his velvet arm-chair, difficult of access and supercilious in his demeanor, I came plump upon the head of the house, standing at his desk like one of his clerks, and evidently quite as hard at work as any among them. On my name being mentioned, in place of stopping to shake hands, and asking me to be seated, and inquiring when I came to town, and how were all at home, and remarking on the news and the weather as I, good easy soul, had imagined he would, in the way of a long preface to a great piece of business, this Wall-street millionaire regarded me with an air of courteous affability, but at the same time with an unmistakable desire to learn and to dispatch my affair, whatever it might be, *without any useless palaver*; so, holding up my bank memorandum, I told him I wanted him to put me in the way of remitting that amount to my friend in Paris. In an instant, with one hand he took the paper, and saying only "three fifty, Sir," with the forefinger of the other, he beckoned a clerk to him, and handing him the *mem.*, he told him to prepare the bills of exchange; then, casting his eyes on a clock in full view, he pointed to it, and said to me, "Call at 12, Sir, if you please," and straightway he *turned to his work!* What "three-and-a-half" meant this deponent did not know; but doubted not that all would be O. K., and not choosing to betray his ignorance of what any fool on 'Change was supposed to understand, he went his way, and true to the appointment, called again at 12, with an "endorsed check from the bank for, as before said, something short of \$30,000. Here again the ceremony was brief, and the dialogue as sententious as nautical language in a storm at sea. On reëntering I handed him the check, whereupon he again called the same clerk, signed the three bills of exchange on Hottinguer & Co., Paris, in the twinkling of an eye, handed them over with practiced suavity of manner, and—*again turned back to his work.* In this "business transaction of tens of thousands, there were not a dozen words spoken, nor more than one minute consumed; and such are the habits of application and dispatch, day in and day out, throughout the year, with these men of enormous fortunes in our large towns. The punctuality and industry which take their root in the early struggles for independence, continue through life; while in the country, if one farmer call on another to buy or sell a cow, or a few barrels of corn, the chance is that the bargain will not be struck until after he has been persuaded to "dinner," if not to supper, though everything on his farm is the worse for his absence—that is, if he be on it a man of intelligence and industry, such as every farmer should aspire to be. Finally, sir, let me ask you whether the best guaranty for profitable employment of such leisure moments as can be gained in the country, be not in a *love of books*, and of such reading as you give us in *THE FARMERS' LIBRARY?* \*

N. B.—These thoughts have been committed to paper while we are steaming up the Rappahannock River, 120 miles in length, winding its way to the Chesapeake through a district of Old Virginia famed in olden time for hospitality and high living—for the excellent management of its housewives and the beauty of their daughters—for cock-fighting, fox-hunting, horse-racing—in a word, for fun and frolic, as for talents, gallantry and patriotism. Should you ever be going to any of the Virginia Springs, I recommend you to take the delightful "*Mary Washington*" steamer, *Capt. Myers*, at Baltimore, at 4 P. M., on any Saturday. At daylight next morning you enter the Rappahannock, and, arriving at Fredericksburgh before night, you will have passed in view of what remains of the

[\* All that we can say to the remark of our correspondent is, that we endeavor assiduously to make up each number of such matter as ought to be placed in the hands of every young man in the country.

*Ed. Farm. Lib.]*

old celebrated Mount Airy, and many of the old family seats of the Tayloes, the Carters, the Bernards, &c., so distinguished for their ample dimensions, the elegance of their hospitality, and the completeness of all their appointments. How large must have been the fortunes, how sterling the virtues, of those who have transmitted affluence and good names, even to the third and fourth generations! Education, sagacity, honorable prudence and attention to modern improvements in Agriculture, have, however, done much to resist in this region, among some families, the effect of often recurring division and subdivision of estates. Much is it to be desired that such conservative influences were of more universal prevalence.

OMOO.

### THE SIX BEST APPLES FOR THE CLIMATE OF BOSTON.

THE following remarks are made by B. V. FRENCH, and we take them from Downing's Horticulturist. The Editor says the writer "is acknowledged to be the best cultivator of the Apple in the neighborhood of Boston. The selection he recommends is based entirely on his own practical observations; and we believe he cultivates in the orchards on his estate at Braintree, a larger collection than any amateur in Massachusetts."

To a person whose grounds are limited, and who must, of course, restrict his variety accordingly, it is important that he should make his choice understandingly and most advantageously. It may be that the best six varieties in the vicinity of Boston may not prove the very best in that of Philadelphia.

[Farmer's Cabinet.]

In recommending the six best apples for New-England culture, I must, of course, be understood to be confined to this number of trees. Where a larger space and greater variety is permitted, several varieties of high merit would certainly be added. In selecting so small a number, you will understand me to bear in mind such qualities of regular productiveness, fair habit of growth and adaptation to our climate, as make a given variety a constant favorite with the cultivator.

I have also kept in view a succession of fruit for the table and kitchen, so as to serve as a continual supply from Midsummer till the succeeding spring.

1st. *Early Harvest*.—For the best early apple worth cultivating, I should name the Early Harvest. The tree, with me, is a free grower, healthy, a profuse bearer, and the fruit hangs well. It ripens the last of July. The fruit is of medium size, roundish, rather flat, and if used when not quite ripe, it is one of the most excellent for pies, tarts, and cooking generally; and when fully ripened on the trees it becomes of a fine, rich yellow, and ranks high as a table fruit.

2d. *The Porter*.—In succession this excellent fruit follows the Early Harvest; it is also a free growing tree, and a great bearer. The fruit is conical-oblong, yellow; the skin is beautifully smooth and fair, and when fully ripened in the sun, has a fine blush. It is excellent for the table or for cooking, and if properly taken care of, will keep from the time of its ripening, early in September, till the middle of October. The many good qualities of this native fruit have made it one of our greatest favorites.

3d. *Fameuse*.—I know of no apple to take the place of the Fameuse for the table

at this season. It is in eating from the middle of October, and with care continues so till February. The tree, with me, is small in size, and a medium bearer; the fruit is of medium size, flat; the skin is red, smooth, and takes a high polish; the flesh is very white, juicy and, I think, in flavor, excels all others for table use, from the time the Porter is gone till the Rhode Island Greening comes into use.

4th. *The Rhode Island Greening*.—The tree is a strong, hardy and free grower, and a great bearer. The fruit is flattened, of a yellowish green, with a dull blush. The flesh is tender, juicy, and of fine flavor for cooking or the table. This fruit is in use from September till February, and is fine for the table in November and December. It is too well known and esteemed to need any description of mine, having a prominent place in every good orchard.

5th. *White Seekno further*.—This excellent fruit, I am informed, originated in the garden of the late William Prince, Esq., of Flushing. In point of fine flavor, it excels all other apples that I have eaten. The tree is of medium growth, of a leaning habit, a full bearer every other year. The fruit is rather oblong, greenish with dark spots; and is not a very fair or sightly fruit. Its season is January and February. Its flesh is very juicy, tender, and fine flavored. This variety is not much known in New-England; in fact, I know of but three bearing trees.

6th. *Baldwin*.—This, our most popular New-England apple, is the universal favorite as a late winter fruit. Its hardy, healthy habit as a tree, and the heavy and regular crops it bears, together with its fine flavor, render it indispensable here in every orchard.

Mr. FRENCH has, we know, devoted his attention to fruits with a zeal equaled only by his taste and intelligence. We look upon and feel bound to hold up such men as he and

\* Or *Pomme de Neige*, London Hort. Soc. Cat., and Downing's Fruit and Fruit Trees  
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Mr. WILDER, the President of the Horticultural Society of Massachusetts, as worthy of all honor and esteem among those who would discriminate between men who distinguish themselves in the peaceful, useful, and elegant pursuits of Agriculture and Horticulture, rather than in schemes of mere money-making, or in fields of blood.

It is with portraits and memoirs of such men as these that we should delight to ornament and enrich the pages of the FARMERS' LIBRARY.

## LONG PREFACES.

Mr. Editor: I wish you could persuade all writers for the public to come *at once to the point*. In our country nothing is so precious as *time*. Do you not often meet with essays in which the pith of the matter is to the preface like a tail to a kite, reminding you of those bad nuts that have an immensely thick hull, and a very small, though it may be rich, kernel? In the British American Cultivator before me is an article of a column and a half on "*Saving Horses from Fire*," the whole gist of which is—

"I recommend first, to *blind* the animal *thoroughly*, and second, to unloose or cut the halter, and the terrified animal will, *with kind and gentle usage*, at once suffer himself to be led past, nay, even *through* the raging element. I have myself been benefited by possessing the knowledge of this plan, and have satisfactorily and practically put it to the test, after all other means that could be thought of—both gentle, persuasive and compulsory—had been tried in vain."

Mr. RANDALL's interesting Letters on 'SHEEP HUSBANDRY IN THE SOUTH' will be continued in our next.

## PRICES CURRENT.

[Corrected, June 23, for the Monthly Journal of Agriculture.]

ASHES—Pots, 1st sort.....	100 lb. 4 75 @ 4 87½	Staves, White Oak, pipe, P M....	50 — @ —
Pearls, 1st sort, '46.....	5 87½ @ —	Staves, White Oak, hhd.....	40 — @ —
BEESWAX—American Yellow ..	24 @ — 25	Staves, White Oak, bbl.....	30 — @ —
CANDLES—Mould, Tallow. P lb...	10½ @ — 12	Staves, Red Oak, hhd.....	24 — @ 28 —
Sperm.....	30 @ — 31	Hoops.....	20 — @ 30 —
COTTON—From.....	10½ @ — 14	Scantling, Eastern.....	— @ —
COTTON BAGGING—American...	13 @ —	Scantling, Oak.....	— @ —
CORDAGE—American.....	11 @ — 12	Timber, Oak.....	P cubic foot — 20 @ — 30
DOMESTIC GOODS—Shirtings, P y.	5 @ — 11	Timber, White Pine.....	— 13 @ — 20
Sheetings.....	6½ @ — 15	Timber, Georgia Yellow Pine ..	— 24 @ — 28
FEATHERS—American, live.....	28 @ — 33	Shingles.....	P bunch 1 50 @ 1 60
FLAX—American.....	8 @ — 9	Shingles, Cedar, 3 feet, 1st quality.	26 — @ —
FLOUR & MEAL—Genesee, P bbl.	7 37½ @ —	Shingles, Cedar, 3 feet, 2d quality.	22 — @ 24 —
Troy.....	— @ —	Shingles, Cedar, 2 feet, 1st quality.	17 — @ 18 —
Michigan.....	7 12½ @ 7 25	Shingles, Cedar, 2 feet, 2d quality.	15 — @ 16 —
Ohio, Flat Hoop.....	7 12½ @ 7 25	Shingles, Cypress, 2 feet.....	13 — @ 14 —
Ohio, Round Hoop.....	— @ —	Shingles, Company.....	28 — @ 30 —
Ohio, via New-Orleans.....	— @ —	MUSTARD—American.....	— @ —
Pennsylvania.....	— @ —	NAILES—Wrought, 6d to 20d... P lb.	10 — @ — 14
Brandywine.....	— @ —	Cut 4d to 40d.....	44 @ — 44
Georgetown.....	7 75 @ —	PLASTER PARIS—P ton.....	2 25 @ —
Baltimore City Mills.....	— @ —	PROVISIONS—Beef, Mess, P bbl...	13 50 @ 14 —
Richmond City Mills.....	— @ —	Beef, Prime.....	9 25 @ 9 50
Richmond Country.....	— @ —	Pork, Mess, Ohio, new.....	16 25 @ 16 37½
Alexandria, Petersburg, &c.....	— @ —	Pork, Prime, Ohio, new.....	13 — @ —
Rye Flour.....	6 — @ —	Lard, Ohio.....	P lb. — 9½ @ — 10½
Corn Meal, Western and Jersey..	4 75 @ 5 —	Hams, Pickled.....	7½ @ — 8½
Corn Meal, Brandywine..... hhd.	5 25 @ 5 37½	Shoulders, Pickled.....	6½ @ — 6½
GRAIN—Wheat, White... P bush.	1 85 @ 1 87½	Sides, Pickled.....	— @ —
Wheat, Red and mixed.....	1 60 @ 1 70	Beef, Smoked.....	P lb. — 12 @ —
Rye, Northern.....	1 10 @ —	Butter, Orange County Dairy ..	18½ @ —
Corn, Jersey and Northern yel...	98 @ 1 —	Butter, Western Dairy ..	13 @ — 15
Corn, Southern, yellow.....	93 @ — 95	Butter, Grease.....	— @ —
Corn, Southern..... (weight)	— @ —	Cheese, in casks and boxes.....	6 @ — 7½
Oats, River and Canal.....	55 @ — 56	SEEDS—Clover.....	P lb. — 6½ @ — 7
Oats, Jersey.....	— @ —	Timothy.....	P tierce 13 — @ 18 —
HAY—North River in bales, P 100 lb	50 @ — 55	Flax, Rough.....	9 25 @ 9 50
HEMP—American, dew-rotted.. ton 100	— @ 110 —	SOAP—N. York, Brown.....	P lb. — 3½ @ — 5½
" " water-rotted.....	175 — @ 200 —	TALLOW—American Rendered ..	— 8½ @ — 9
HOPS—1st sort 1846.....	9 @ — 12	TOBACCO—Virginia.....	@ lb. — 2½ @ — 7½
IRON—American Pig, No 1.....	— @ 32 50	North Carolina.....	— @ —
" " Common.....	22 50 @ 25 —	Kentucky and Missouri.....	— 3 @ — 7½
LIME—Thomaston.....	P bbl. — 80 @ —	WOOL—Am. Saxony, Fleece, P lb.	— 40 @ — 45
LUMBER—Boards, N.R., P M. ft. clr.	30 — @ 35 —	American Full Blood Merino ..	— 35 @ — 38
Boards, Eastern Pine.....	— @ —	American ½ and ¾ Merino.....	— 28 @ — 32
Boards, Albany Pine.....	P pce. — 10 @ — 18	American Native and ¾ Merino...	— 25 @ — 27
Plank, Georgia Y. Pine, P M. ft. ...	27 50 @ —	Superfine, Pulled Country.....	— 30 @ — 31